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Factors Mediating Disruptive Behaviors in a Veterans Affairs Medical Center

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Abstract

More nonfatal assaults against workers occur in the health care industry than in any other service-oriented industry in the United States. Nurse aides, nurse attendants, and orderlies suffer the most nonfatal assaults resulting in injury, and 45% of nonfatal assaults against health care workers result in lost workdays (Janocha & Smith, 2010). Although leaders of the Veterans Health Administration require all Veterans Affairs medical centers to implement a standardized program on preventing and managing disruptive behavior, the program has not prevented patient assaults against health care workers. Disruptive behaviors are often related to care giving situations in which the patient wants something that is not possible, refuses to participate in what is required, demands instant gratification, or demands immediate emotional support. In response to the patients' demands and actions, health care providers use limit setting, activity demand, and denial of request. These interactional factors are antecedents to patients' disruptive behavior; when disruptive behavior becomes potentially harmful, the incidents are termed code green events.

This study sought to answer the following questions: (a) Are code greens associated with symptoms of a medical and/or psychiatric diagnosis, denial of request, limit setting, and activity demand? (b) Are activity demand, denial of request, and limit setting more likely to be associated with code green events than are symptoms of a psychiatric or medical diagnosis, and are denial of request, activity demand, and limit setting associated with verbal de-escalation, chemical restraint, and physical restraint? (c) Are there relationships between incidents of disruptive behavior, time of day, and practice environment?

The study involved examining 432 code green incidents that occurred from 2007 to 2010. The results of the statistical analysis indicate a significant relationship exists between time of day and patients' disruptive behavior involving potential self-harm occurred most often from 4:00 p.m. to midnight, $X^2(2, N = 43) = 6.96, p = 0.03$.

Patients were more likely to be given medication or restrained, $p = 0.009$, when disruptive behavior was associated with refusal of request and/or activity demand. The study results that indicate caritas literacy, the concept of using caring techniques to prevent and manage disruptive behavior, was present during 46.76% of the code greens as nursing staff endeavored to de-escalate the disruptive behavior by engaging in caring actions and using verbal de-escalation. When verbal de-escalation was not effective, nursing staff used chemical restraint (the mildest form of restraint) 32.64% of the time and manual holds 14.58% of the time to keep the disruptive patients from hurting themselves and others. Mechanical restraint, seclusion, and turnover to the police (techniques that lack caritas literacy) were used less than 5% of the time, a clear indication that the nursing staff at the study site used forceful measures only as a last resort.

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Chapter 1

This chapter contains a presentation of the background and significance of the study, the problem statement, definitions of terms, and the purpose of the study. Additionally, the research questions are presented.

Background

Efforts to prevent disruptive and violent behavior in health care settings, particularly in hospital settings, have a long-standing history. In 1970, for example, members of the National Institute for Occupational Safety developed violence-prevention guidelines (U.S. Department of Labor, 2012). These guidelines, listed below, apply to all health care facilities under the purview of the U.S. Department of Labor's Occupational Safety and Health Administration (2004):

- Develop a program to prevent violence, and communicate the program to every employee.
- Inform all patients and visitors that verbal and nonverbal threats, violence, and related behavior are not tolerated.
- Create and train a response team to respond to dangerous situations.
- Encourage personnel to report incidents promptly and to recommend methods of reducing or eliminating risks.
- Examine the physical setup of the workplace to identify potential or existing hazards; install and maintain security devices, such as alarm systems and panic buttons, in higher-risk areas; and develop a reliable system for responding to alarms.
- Use metal detectors to check patients and visitors for weapons.

- Assign an employee to be a liaison with the local police department and state prosecutors, report all incidents of violence, and provide the police department with floor plans of the health care facility to expedite emergency response and investigations.
- Ensure all areas are adequately staffed at all times.
- Use medical records tags, logbooks, or other means to identify patients with behavior problems.
- Implement a sign-in procedure for visitors, and require visitors to wear passes; develop a restricted-visitors list for patients who have been violent in the past.
- With the exception of waiting rooms, control patients' and visitors' access to the facilities, particularly the pharmacy and drug storage areas.
- Provide medical care and psychological debriefing and counseling to employees who experience or witness assaults and other violent incidents.

Additionally, prior to 1995 the Joint Commission created two standards regarding behavior: (a) Hospital leaders should develop a code of conduct that defines acceptable behavior as well as disruptive and inappropriate behaviors and (b) hospital leaders should develop and implement a process for addressing disruptive and inappropriate behaviors (Joint Commission, 2010). Though the standards from the Joint Commission and the guidelines from National Institute for Occupational Safety have increased awareness of

disruptive behavior in the workplace, they have done little to decrease the amount of disruptive behavior in health care facilities.

Of all service-oriented industries in the United States, the health care industry has the highest occurrence of nonfatal assaults against workers, with 45% of occurrences resulting in lost work days. Nurse aides, orderlies, and attendants suffer the most from nonfatal assaults resulting in injury (Janocha & Smith, 2010). Between October 1, 2003, and September 30, 2011, nursing staff in Veterans Administration medical centers reported 9,964 nonfatal assault incidents (Welch, Hodgson, & Haberfelde, 2013). Fatal assaults are also a problem. From 2003 to 2009, eight registered nurses were fatally injured on the job; all were working in private health care facilities and were 35 to 54 years old (U.S. Bureau of Labor Statistics, 2011).

It is important to note that the assault data are five to six times higher for registered nurses (RN), nursing assistants (NA), and licensed vocational nurses (LVN) who work at Veterans Health Administration (VHA) facilities than for police who work at VHA facilities (see Figure 1). In addition, the number of reported assaults involving RNs, NAs, and LVNs is five to eight times higher than the number of reported assaults regarding other VHA occupational groups (VHA, 2012).

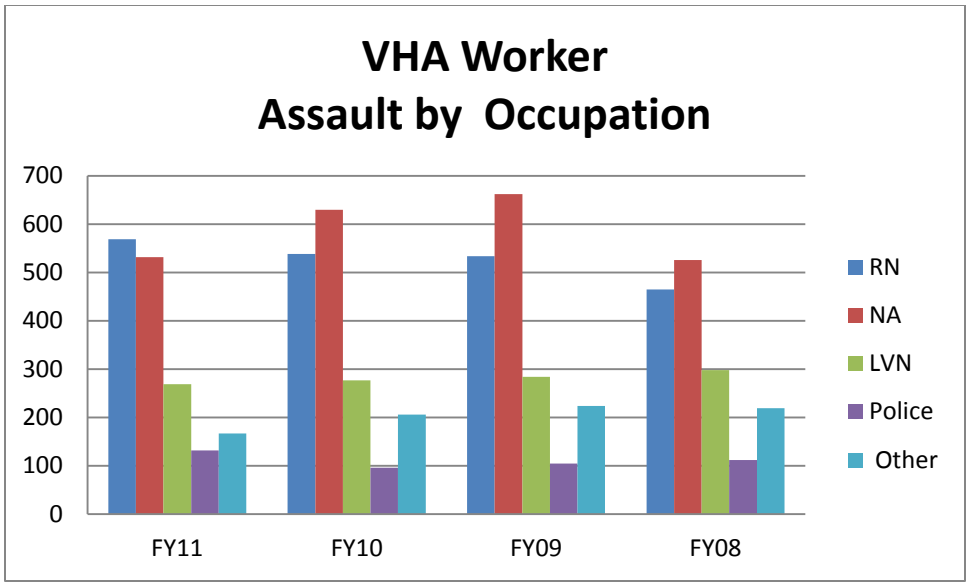

Figure 1. Number of assaults reported to VHA's Workers' Compensation Program. Adapted from "Veterans Support Service Center," by Veterans Health Administration, August 24, 2012. Retrieved from http://www.vssc.gov.

Members of the Department of Veterans Affairs (VA) Office of Inspector General (2013) reported findings from an internal review of the implementation of the Management of Disruptive Patient Behavior Program. According to the findings, reports on assault incidents have varying amounts of detail; the variances limit the ability to develop and deploy methods to prevent or minimize the risk of future incidents (Department of VA Office of Inspector General, 2013). Kelen and Catlett (2010) shared similar thoughts in their commentary on violence in health care settings. Kelen and Catlett encouraged health care administrators to install metal detectors as well as to address all other variables, including the culture of violence, as a means to mitigate workplace violence.

Many researchers have reported that violence in health care settings ranges from verbal abuse and threats to physical assault. This range of disruptive behavior is pervasive and has many associated costs (Henry & Ginn, 2002; McPhaul & Lipscomb, 2004). According to data from the U.S. Bureau of Labor Statistics, health care and social service workers have a high risk of being violently assaulted at work (Janocha & Smith, 2010). Almost half (48%) of all nonfatal injuries from disruptive behavior occurred in social services and health care (National Institute for Occupational Safety and Health, 2012). For social service workers, 7.7% of assaults in 2008 resulted in injuries; the rate for health care workers overall was 8.7%. Most of the incidents occurred in hospitals, nursing and personal care facilities, and in residential care settings. The rate for nursing and personal care facility workers was 20.8%. These incidents of disruptive behavior resulted in over 16,980 days away from work (National Institute for Occupational Safety and Health, 2012). The Joint Commission has also documented violent behavior directed toward health care personnel. The commission's database indicates assault, rape, and homicide have increased in health care settings, with 36 incidents reported in 2007, 41 in 2008, and 33 in 2009 (Joint Commission, 2010).

According to the Joint Commission's (2010) database of assault reports, the following factors contribute to violence in the health care setting. (The factors are nonexclusive, meaning multiple factors may contribute to a single incident.)

- Leadership—62% of incidents are related to a lack of or inadequate policies and procedures.
- Human resources—60% of incidents are related to the need for staff education and competency assessments.

- Assessment—58% of incidents are related to flawed protocols for observing patient, inadequate assessment tools, and a lack of psychiatric assessments.
- Communication—53% of incidents are related to communication between staff, patients, and patients' family.
- Physical environment—36% of incidents are related to deficiencies in the general safety of the facility and deficiencies in security procedures and practices.
- Other factors are associated with care planning, information management, and patient education.

Significance of the Study

Researchers have identified the extent and severity of the problem of health care workers being assaulted (Bowers, Allan, Simpson, Jones, & Van Der Merwe, 2009; Duxbury & Whittington, 2005; Hutchinson, Jackson, Haigh, & Hayster, 2013; Shields & Wilkins, 2009). On February 3, 1997, the VHA issued a letter titled *Violent Behavior Prevention Program*, requiring all VA medical centers to implement a standardized curriculum to prevent and manage disruptive behavior. However, the standardized curriculum does not provide enough guidance to prevent assaults of health care workers.

Authoritative approaches to providing patient care may be inherent in VA medical centers because many of the nursing staff are military veterans and focus on the military culture of giving and following orders ("To Know Them Is to Serve Them Better," 2011, p. 8). The communication dynamics in VA medical centers are important to consider, particularly because communication between staff, patients, and patients' families

contributes to 53% of assaults on health care workers (Joint Commission, 2010). Quanbeck et al. (2007) expanded on this idea, explaining that the manner in which nursing staff approach patients significantly affects the likelihood of patients assaulting the nursing staff. To effectively address disruptive behavior and mitigate assault, nursing staff must develop and apply interaction skills that de-escalate disruptive behavior. Antecedent variables which mediate interaction have not been studied in the hospitalized veteran population. Therefore, it is important to study how these mediating factors may affect disruptive behavior in the hospitalized veteran population.

The objective of this descriptive retrospective study was to examine the antecedent factors associated with disruptive behaviors in veterans in inpatient hospital units and emergency rooms during code green events. Specific factors examined include limit setting, activity demand, and denial of request (Duxbury & Whittington, 2005; Fagan-Pryor et al., 2003; Ilkiw-Lavalle & Grenyer, 2003; Newbill et al., 2010; Quanbeck, McDermott, Lam, & Scott, 2007). Prior to the current study, this research has not been applied to VA health care facilities.

Problem Statement

A paucity of research is available on the dynamic antecedent mediating factors of patients' disruptive behaviors in hospitals. According to the available research, patients indicate their disruptive behavior is a response to three behaviors health care staff engage in: limit setting (i.e., stopping the patient from doing something the patient wants to continue doing), activity demand (i.e., requiring the patient to do something the patient does not want to do), and denial of requests (Lance, Gallop, McCay, & Toner, 1995; Lowe, Wellman, & Taylor, 2003; Newbill et al., 2010; Quanbeck et al., 2007). Newbill

et al. (2010), however, noted that this information "cannot be taken as factual evidence, because the source of information used in these studies is self-report" (p. 179). Additional research is needed to determine whether limit setting, activity demand, and denial of request contribute to disruptive behaviors in the general hospital environment and in emergency rooms for the veteran population.

Definitions of Terms

The following definitions will be used in this study:

Activity demand. An activity demand consists of a care provider insisting that a patient participate in a defined action, such as bathing, sitting, staying in a specified place (waiting), or taking medication. An activity demand may be an antecedent to a code green event (Newbill et al., 2010).

Chemical restraint. A chemical restraint involves administering a short-term sedative medication to a willing patient. The chemical restraint may include physically restricting a patient extremity from jerking responses during the injection of medication. This process is defined as a manual hold and is not associated with a physical or mechanical restraint during disruptive behavior (Michael E DeBakey Veteran Affairs, 2011).

Code green. A code green is an emergency situation in which a patient's behavior (a) creates a risk of imminent physical harm to the patient or others, (b) does not involve a weapon or criminal activity, and (c) requires resources beyond those readily available to de-escalate or control the behavior. The additional resources consist of a code green team, which is called in to de-escalate or manage the behavior through

applying positive patient-centered interventions that involve providing the patient with choices (Michael E DeBakey Veteran Affairs, 2011).

Denial of request. A denial of request involves a care provider refusing to grant a competent patient's reasonable request (e.g., refusing a treatment protocol or leaving the treatment setting to smoke) without providing reasonable options. The denial of request may contribute to disruptive behavior (Newbill et al., 2010).

Disruptive behavior. Disruptive behavior is a patient's action or series of related actions (hitting, throwing objects, kicking, screaming, repetitive questioning, wondering, threatening, verbally abusing, etc.) that occur in a general hospital environment or emergency room. The patient's behavior (a) is perceived as creating an imminent risk of harm to self, another patient, staff, or property and (b) does not involve a weapon or criminal activity (Michael E DeBakey Veteran Affairs, 2011).

Limit setting. Limit setting is a care provider's attempt to establish boundaries related to a patient behavior or change a patient's unwanted behavior without validating the existence of unmet patient needs (Watson, 2008).

Physical restraint/manual hold. A physical restraint/manual hold is an intervention a health care provider uses to restrict a patient's ability to voluntarily move his or her arms, legs, and head. The intervention involves applying force by human or mechanical means (Michael E DeBakey Veteran Affairs, 2011).

Practice environment. A practice environment consists of the number of nursing personnel (measured in working hours) in a nursing unit at the time of a code green event (Aiken, Clarke, & Sloane, 2001).

Turnover to police. A turnover to police occurs when disruptive behavior includes the use a weapon (e.g., throwing chairs).

Verbal de-escalation. Verbal de-escalation occurs when a care provider's verbal interactions with a patient move the patient from a stance of negative aggression to a stance of positive interaction (Michael E DeBakey Veteran Affairs, 2011).

Purpose of the Study

The purpose of this descriptive retrospective study was to examine the antecedent factors associated with disruptive behaviors in veterans in inpatient hospital units and emergency rooms during code green events. In particular, the factors of limit setting, activity demand, and denial of request were investigated. This study contributed to the literature by examining the amount of variance activity demand, denial of request, and limit setting may account for as deterrents of disruptive behavior.

Research Questions

The following research questions were developed to guide this study:

- Are code greens associated with symptoms of a medical and/or psychiatric diagnosis, denial of request, limit setting, and activity demand?
- Are activity demand, denial of request, and limit setting more likely to be associated with code green events than are symptoms of a psychiatric or medical diagnosis, and are denial of request, activity demand, and limit setting associated with verbal de-escalation, chemical restraint, and physical restraint?
- Are there relationships between incidents of disruptive behavior, time of day, and practice environment?

Chapter 2

Chapter 2 contains discussion of the study's conceptual framework, which consists of Watson's theory of human caring. The chapter also includes a review of the literature related to the topic of the study. In particular, the research on disruptive behavior is discussed.

Conceptual Framework

Watson's (2008) theory of human caring, specifically caritas literacy, provided the conceptual framework for this study. Watson (2005) introduced the skill set of caritas literacy to acknowledge that caring, rather than technical skills or competencies, "is intrinsic to the actual nurse-patient interaction" (p. 63). According to Watson (2005), caring interaction results in measurable positive outcomes. Watson (2005) posited that caritas literacy includes competently assessing and communicating with patients in the health care setting. Additionally, caritas literacy involves demonstrating respect for patients and applying the knowledge and skills needed to connect with the experience of the patient (Cookson, Daffern, & Foley, 2011).

When caritas literacy is absent, disruptive behavior is likely to be the outcome of patient care (see the left gear in Figure 2). Disruptive behavior in the clinical environment is an event or series of related events in which a patient's behavior (a) is perceived as an imminent risk of harming self, another patient, staff, or property and (b) does not involve a weapon or criminal activity (VHA, 2011). The absence of caritas literacy is often manifested in actions associated with denial of request, activity demand, and limit setting (see the top gear in Figure 2). The actions may be

followed by disruptive behavior and subsequently the use of chemical and/or physical restraints.

When nurses lack caritas literacy, they assess patient needs based on viewing the patient only as a diagnosis and a disruptive event (Duxbury, 2002; Ilkiw-Lavalle & Grenyer, 2003; Morrison, 1998). Additionally, when nurses lack caritas literacy, the interactions between the nurse and their patient can be biocidic (i.e., toxic), causing the patient to feel inanimate, hopeless, and powerless, lacking self-direction (Linehan, 1993). These feelings are evidenced as disruptive behavior. When disruptive behavior occurs, the code green team response is initiated.

The code green team implements methods to manage the disruptive behavior (see the bottom gear in Figure 2). Restoring caritas literacy to the practice environment involves implementing five dimensions of nurse patient-interaction: "(a) assurance of human presence, (b) respectful deference to the other, (c) professional knowledge and skill, (d) positive connectedness, and (e) attentiveness to other's experience" (Wolf, Giardino, Osborne, & Ambrose, 1994, p. 110).

Caritas literacy is described as consciousness that embodies the unique attributes of how expert nurses interact with their patients. Caritas literacy involves an "intentional, cultivated, and learned approach of the whole person to have fluency and learned skill of emotional and heart centered intelligence, knowledge and skillful ways, being-human," (Watson, 2008, p. 281). Although the code green team has six de-escalation methods (verbal de-escalation, chemical restraint, manual hold, physical restraint, seclusion, and turnover to the police), when caritas literacy is applied the clinical interventions implemented focus on verbal de-escalation of the patient's

behavior, with the intent of restoring caring literacy to the practice environment (Watson, 2008).

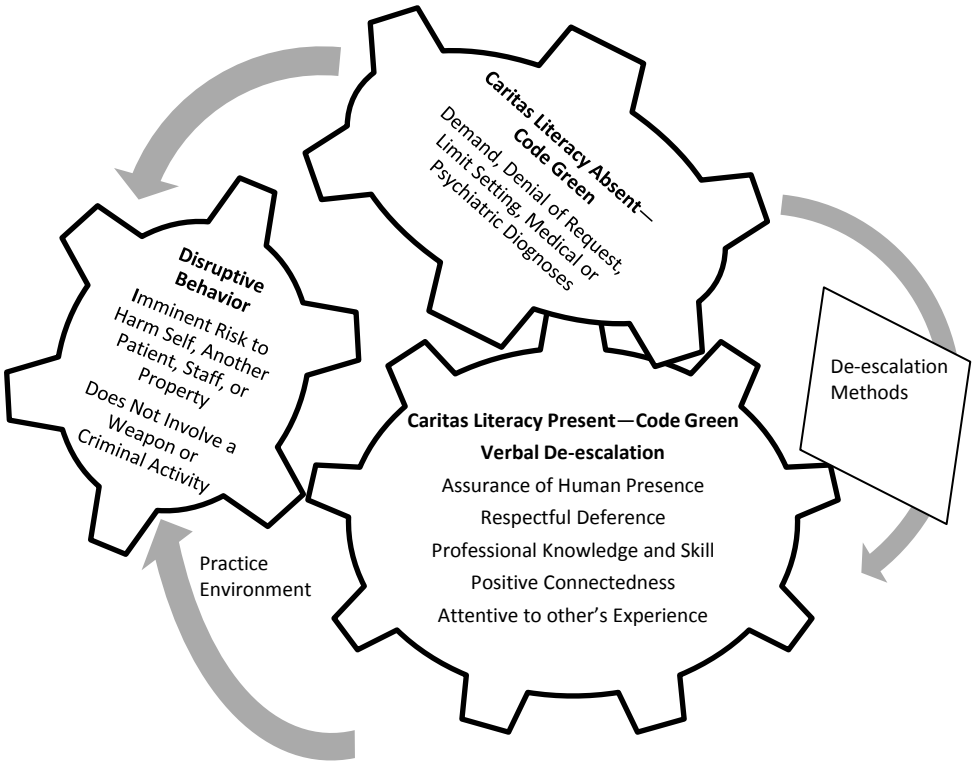

Figure 2. Model for caring prevention and management of disruptive behavior.

As nurses practice their profession day to day, they become conscious of their care practices; this consciousness is part of caritas literacy (Watson, 2008). Furthermore, a nurse's caring is contained in a "single caring moment" (p. 282) between nurse and patient (Watson, 2008). Therefore, caritas literacy is the skill through which the nurse observes the patient, assesses the situation and the patient, identifies where the patient is on the continuum of behavioral response, understands the meaning of the behavior, knows what the patient needs, connects with the patient,

and matches the intervention with the patient's needs (Johnson & Hauser, 2001). Caritas literacy is not a process of engaging in caring actions in a prescriptive way to obtain a desired result; rather, caritas literacy is an approach that advocates for the patient as a respected human being (Sitzman, 2002).

Review of the Literature

The focus of this literature review is on research regarding disruptive behavior in the health care setting. Subtopics include nurse work schedules, the practice environment, caring environments, and limit-setting interventions.

Disruptive behavior. Researchers on violence in nursing and health care settings have identified issues ranging from covert acts, such as threats, bullying, and stalking, to overt physical attacks (Chang & Lee, 2004; Douglas, Guy, &Hart, 2008). Researchers have also identified multiple variables associated with disruptive behavior, such as psychiatric diagnoses, age, and gender (Chang & Lee, 2004; Douglas et al., 2008). Though disruptive behavior is discussed in the literature, researchers do not agree on the best methods of avoiding and managing disruptive behavior in hospitals (Daffern, Day, & Cookson, 2011; Finfgeld-Connett, 2007; Henry & Ginn, 2002; Morrison, 1998).

Chang and Lee (2004) examined 111 newly diagnosed psychiatric patients for incidents of aggression recorded by the nursing staff. The mean age of the patients was 38 years old, with a mean education level of 9.5 years; nearly half of the patients were women. During the patients' hospitalization, 46 engaged in 224 episodes of aggression toward others (Chang & Lee, 2004). Twenty-four engaged in more than one episode of violence. Patients who exhibited physical aggression during hospitalization tended to be younger (t = -2.44, df = 109, p = .02) and to have received the major psychiatric diagnosis

at a younger age (t = -3.21, df = 109, p = .002) (Chang & Lee, 2004). Change and Lee also found that an increased risk of aggression was significantly associated with a longer length of stay in the hospital.

Change and Lee (2004) did not address whether these acts of aggression were directed primarily to other patients or to staff members. Nor did the researchers examine the treatment variables that may have influenced the aggression events (Change & Lee, 2004). Chang and Lee theorized that aggression is an indication of severe psychopathology that necessitates longer hospitalization.

Researchers have long debated the association between psychosis and violence directed at others. Research findings are inconclusive and contain a variety of moderator variables potentially explaining the influence and the strength of the relationships between independent and dependent variables. Douglas et al. (2008) conducted a meta-analysis of 204 studies based on 166 independent data sets. The results of the meta-analysis indicate that "psychosis was significantly associated with a 49%–68% increase in the odds of violence" (Douglas et al., 2008, p. 679). However, the researchers found considerable variance among the effect sizes in the studies. The variance was partly attributable to methodological factors, including the research design, comparison groups (e.g., depression vs. schizophrenia vs. no mental disorder), and how *violence* and *psychosis* were defined (Douglas et al., 2009).

Research related to incidents of disruptive behavior in older adults indicates this population tends to have dementia along with other medical conditions, such as pain, urinary tract infections, hyperglycemia, and anemia, as moderating factors (Ayalon, Gum, Feliciano, & Arcean, 2006; Bradford et al., 2012; Cohen-Mansfield, 2009; Gitlin,

Winter, Dennis, Hodgson, & Hauck, 2010; Kunik, Snow, & Davila, 2010). Gitlin et al. (2010) conducted a randomized trial of a nonpharmacological intervention with 270 caregivers of older adults with dementia. The researchers reported that caregivers described disruptive behavior as including argumentative, repetitive questioning; refusals of help and resistance to care, attempts to leave, agitation, delusions (screaming and crying), and physical aggression (Gitlin et al., 2010).

During the study, caregivers in the treatment group communicated with health professionals, who explained potential triggers of disruptive behavior, as well as trained the caregivers on strategies to address triggers and reduce disruptive behavior. (Gitlin et al., 2010). Caregivers in the control group did not communicate with the health professionals. By the 16th week of the study, 67.5% of caregivers in the treatment group reported improvement in their abilities to manage difficult behavior; 45.8% of caregivers in the control group reported improvement in their abilities to manage difficult behavior (Gitlin et al., 2010). In addition, Gitlin et al. (2010) reported that caregivers in the treatment group identified and adapted to at least three sources of unmet needs of the individuals being cared for. These adaptations had immediate positive effects on the most difficult behavior. The caregivers in the treatment group also reported feeling less upset with all difficult behaviors ($p = .001$), communicating less negatively ($p = .02$), feeling less burdened ($p = .05$), and achieving greater well-being ($p = .001$) than did the caregivers in the control group (Gitlin et al., 2010). Gitlin et al. did not specifically actions associated with denial of request, limit setting, and activity demand.

Caring and disruptive behavior. Interactional variables are related to the relationships among patients and staff in a nursing unit. These variables include

communications between patients and staff, as well as interactional styles. Finfgeld-Connett (2007) sought to obtain an understanding of the concept of caring by using metasynthesis and grounded theory strategies. Through synthesizing 49 qualitative reports and six concept analyses of caring, Finfgeld-Connett found that "caring in context is the use of specific interpersonal processes which are characterized by expert nursing practice and exemplifies interpersonal sensitivity in the establishment of intimate relationships" (p. 197). Finfgeld-Connett elaborated that caring is the response to a patient's expressed unmet needs as well as the innate moral foundation and professional maturity of the nurse. In this sense, the practice environment is internal and external, and it is necessary to cultivate well-being among nurses and patients (Finfgeld-Connett, 2007).

The essence of caritas is seen as transpersonal caring that treats patients as individuals deserving respect. Transpersonal caring requires the nurse to be keenly aware of self and all components of the practice environment in which the nurse interacts with patients (Watson, 2005). When nursing staff have insufficient time to address a patient's present needs, staff are more likely to set limits on behavior, including by using restraints (Jones, Borasi, Nankivell, & Lockwood, 2006).

Lancee, Gallop, McCay, and Toner (1995) used an experimental design to determine whether an association exists between the limit-setting characteristics of "belittlement, platitudes, solution without options, solution with options, affective involvement without options, and affective involvement with options" (p. 612). Lancee et al. exposed 97 patients to simulations of common patient-staff interactions in inpatient psychiatric units. The researchers found that a powerful moderator of patient anger is the nurse's use of limit setting irrespective of the patient's diagnosis or level of impulsivity.

Making platitudes and offering solutions resulted in less patient anger than did belittlement; nevertheless, platitudes and solutions were ineffective in setting limits without causing anger (Lancee et al., 1995). The researchers found that nonimpulsive patients expressed anger less often when nurses effectively involved the patients in limit setting, such as offering a solution along with options. Impulsive patients tended to express a low level of anger even when limit setting included effective involvement and options (Lancee et al., 1995). Interestingly, empathy alone was insufficient to contain anger; the empathy needed to be paired with other options for action.

In a subsequent study, Lowe et al. (2003) examined nurses' attitudes toward patient autonomy when considering limit setting, as well as the value nurses place on different categories of intervention. Each nurse in the study rated the appropriateness of 10 intervention options for each of 10 conflict scenarios and the researchers used a multidimensional scaling methodology to analyze the responses (Lowe et al., 2003). The responses were reduced to three main dimensions: support/control, communication, and face-saving/personal control. Support/control was identified as the most significant in categorizing and understanding the nurses' responses to conflict situations. This dimension consisted of three lower-order categories: setting limits, using structure, and confirming intervention, with confirming intervention at the opposite end of the spectrum from the other two subcategories (Lowe et al., 2003). The using-structure subcategory regards providing clear guidelines and expectations; the confirming-interventions subcategory regards conveying respect for the patient and his or her autonomy (Lowe et al., 2003). Lowe et al. concluded from the findings that nurses in the study highly

regarded setting limits and using structure when addressing conflicts but that these strategies must be considered in terms of confirming interventions.

The results also indicate that inexperienced nurses are more apt than experienced nurses to value a regimented environment with less patient autonomy (Lowe et al., 2003). In general, nurses disagree in their assessments of patient behaviors; this disagreement may lead to potential conflicts, especially when certain behaviors are associated with moral judgments that are central to the professional role of nurses. These differences add to the complexity of understanding nurses' behaviors in conflict situations (Lowe et al., 2003).

Quanbeck et al. (2007) examined the factors that influenced aggression in 88 chronically assaultive state hospital patients who committed 839 assaults. The majority of the patients responsible for the assaults (54%) were categorized as impulsive and had been diagnosed with primary psychotic disorders (Quanbeck et al., 2007). Psychotic-patient assaults accounted for 17% of the total assaults directed at staff and tended to be related to fixed ideations, such as paranoia. Impulsive assaults were characterized as being provoked and uncontrollable, with the patient making verbal threats and demonstrating an inability to de-escalate. Impulsive patients demonstrated a lack of concern for personal safety and potential consequences (Quanbeck et al., 2007).

Almost one-third (29%) of the assaults were categorized as organized and associated with revenge (Quanbeck et al., 2007). Assaults on staff members were most often associated with staff members' use of limit setting (redirecting patient behavior) and denial of requests. Conjointly psychiatric patients indicated their reasons for disruptive behavior included behavioral limitations, inflexible unit rules,

misunderstandings, and poor communication with staff (Quanbeck et al., 2007). Based on these findings, Quanbeck et al. (2007) concluded that patients deemed to be at high risk for assault should receive more individualized interventions.

Developing treatment approaches to prevent aggressive behavior requires staff and patients to collaborate in identifying the most effective interventions. Fagan-Pryor et al. (2003) interviewed 92 veterans regarding their perceptions of aggression in hospitals and found that 84% of the veterans had a psychiatric diagnosis and 16% of them had a medical diagnosis. Half of the participants had witnessed or directly experienced hospital violence. Of the participants who had been indirectly or directly exposed to violence, 41% indicated the situations resulted from individual factors (e.g., sequelae, including changes in cognition) and interpersonal stressors, such as communication that include abrasive words (Fagan-Pryor et al., 2003). Other factors contributing to violence, according to the participants, include inadequate staffing, staff members' misuse of power, and patients' opposition to authority (Fagan-Pryor et al., 2003).

In a similar study, Ilkiw-Lavalle and Grenyer (2003) surveyed 29 psychiatric patients and 29 staff members regarding their involvement in aggressive interactions in a hospital unit. Patients identified three main causes of aggression: factors associated with the sequelae of their illnesses (33%), interpersonal disagreement (36%), and limit setting (31%). The majority of patients recommended the following measures to decrease aggression: improve collaboration when selecting medications (4%), decrease the rigidity in limit setting (32%), and improve how interpersonal disagreements are managed (64%) (Ilkiw-Lavalle & Grenyer, 2003). The patients perceived disagreements with staff to result from the staff being inattentive to and inconsiderate of the patients' unmet needs,

inconsistent managing treatment regiments, punishing patients such as by changing medications, inconsistently applying unit rules to patients, and granting favors to some patients. In contrast, the nursing staff believed the main cause of aggression to be the patient's illness. Therefore, the staff perceived that managing aggression typically required changing the patients' medication (Ilkiw-Lavalle & Grenyer, 2003).

Bredthauer, Becker, Eichner, Koczy, and Nikolaus (2005) examined 122 geriatric hospital patients to identify factors related to using physical restraints. The researchers found that physical restraints were used most (48%) with in elderly patients diagnosed with dementia or delirium. Further, 83% of the use of restraints occurred during the initial days of the patients' hospitalization. For 78.4% of the restrained patients, the number of hours the patients were physically restrained ranged from 12 to 24 hours a day; in other words, some patients were continuously restrained until death or discharge. Patients with impaired mobility and dementia had the highest risk of being restrained (p = 0.015) (Bredthauer et al., 2005). There was no association between how often a patient fell and the number of hours the patient was restrained when compared to patients who had not been restrained during the investigation (Bredthauer et al., 2005).

Interestingly, Bredthauer et al. (2005) found that the use of physical restraints is associated with an increased use of benzodiazepines and neuroleptics. The most prevalent cofactor associated with using restraints was disruptive behavior. The researchers posited that the physicians responsible for the restrained patients may have justified the use of restraints by citing socially acceptable reason for the restraints, such as to prevent falls, which they thought may ethically validate their behavior rather than those that were not clinically justifiable (Bredthauer et al., 2005). Such justifications

might be used because disruptive behavior that is not associated with a high risk for homicide or suicide is not an ethically or clinically appropriate reason for using restraints; in contrast, intermittent use associated with supporting quality of life is generally a legitimate use of restraints (Bredthauer et al., 2005).

Cookson et al. (2011) explored interaction styles and the associations between how patients view themselves and form relationships with others. The study results indicate that patients are more likely to be aggressive if they feel the need to dominate interactions with staff (Cookson et al., 2011). The likelihood of aggression is also greater when patients are admitted to the hospital by the legal system, a 72% likelihood of aggression in involuntarily admitted patients compared to 48% for voluntarily admitted patients (Cookson et al., 2011). Factors not associated with aggression include the presence or absence of a bond with staff, perceptions of coercion, negative psychiatric symptoms, and age. Cookson et al. did not find support for the theory that the lack of a therapeutic alliance increases the probability of aggression toward staff (Cookson et al., 2011).

The findings of this study also highlight the importance of staff being mindful when setting limits when using clinical interventions focused on a patient's hostile and domineering characteristics (Cookson et al., 2011). The boundaries and structure of an inpatient environment are likely to provoke patients who are prone to hostility and anger. In addition, patients with an uncharacteristic need for power and control who are also involuntary committed will resist demands for cooperation in a treatment environment (Cookson et al., 2011).

To address the different perceptions of patients and staff member regarding the causes of violence, Newbill et al. (2010) analyzed data from more than 26,000 hours of

direct observational coding of staff activities, including staff-patient interactions. The data had been collected over 10 years by independent, noninteractive raters of social learning program units in a state hospital. The quasi-independent variables in the study were assaulted staff and never-assaulted staff; the dependent variable was the rate at which staff engaged in aversive interactions, as captured by the independent observers (Newbill et al., 2010). On average, the professional raters observed the employees 200.16 times during the period of the study (*SD* = 338.84; Newbill et al., 2010).

Of the 805 employees who had worked for at least three months in the social learning program units during the study period, 49.4% (*n* = 398) had been assaulted on at least one occasion (Newbill et al. 2010). The total interaction rates for staff that were assaulted were not significantly different from the interaction rates of non-assaulted staff (198.9 vs. 209.4 interactions per hour) (Newbill et al., 2010). In all cases, staff members who had been assaulted engaged in aversive interactions with patients significantly more frequently than staff members who had not been assaulted (Newbill et al. 2010). This finding is consistent with the literature indicating that patient perceive assaults follow aversive interactions with staff, such as limit setting, activity demand, and denial of request (Fagan-Pryor et al., 2003; Ilkiw-Lavalle & Grenyer, 2003).

Nurse work schedules and disruptive behavior. Only four studies in the literature regard the relation between nurses' work schedules and disruptive behavior in a non-psychiatric or long-term care setting (Duxbury, 1999; Hodgson et al., 2004; Kynoch, Wu, & Chang, 2011; Zernike & Sharpe, 1998). Only one of these studies, conducted by Hodgson et al. (2004), occurred in the United States. The lack of research on aggression and disruptive behavior in a general hospital setting could in part be related to the staff

members' perceptions and definitions of disruptive behavior, as well as the methods of documenting patient behavior (Zernike &Sharpe, 1998).

Hodgson et al. (2004) examined assault frequency and risk factors in 142 VA hospitals. Overall, 72,349 health care providers, including RNs, LVNs, physicians, and social workers provided descriptions of disruptive behavior, representing a 36% response rate (Hodgson et al., 2004). In the reported assaults, patients were perpetrators 64.4% of time; 85% of assaults were triggered by staff-patient interactions, but clinical root causes, such as underlying medical conditions, were not reported (Hodgson et al., 2004). Regression models for the two independent variables of employee focus and professional demands were developed to explore possible causes of assault (Hodgson et al., 2004). The researchers found that working higher numbers of hours per week was not associated with increased assault; however frequent nonstandard work assignment (floating shifts, shift switching, and overtime) were risk factors. Further, staff training in alternate dispute resolution strategies reduced the likelihood of assault by almost 40% (Hodgson et al., 2004).

In a much earlier study, Zernike and Sharpe (1998) surveyed health care staff in the United Kingdom to determine whether they had experienced aggressive incidents in the general hospital setting. Over five months, the staff reported 68 incidents of what they defined to be aggression (Zernike & Sharpe, 1998). To manage aggressive patients, staff used chemical and physical restraints. Zernike and Sharpe identified the following factors related to patients' aggressive acts: denial of requests (n = 8), help with activities related to daily living (n = 9), dementia (n = 11), environment (n = 8), and pain (n = 4).

Zernike and Sharpe found, similar to Hodgson et al. (2004), that the majority of incidents were related to hours worked and negative interactions between staff and patients.

Practice environment and disruptive behavior. An aspect of caritas literacy is creating and promoting a healing environment (Watson, 2008). A primary component of creating a healing environment is accurately assessing and effectively managing disruptive behaviors. It is well documented that sustained self-efficacy is associated with work environments that involve opportunities to participate in self governance and gain power through acquisition of resources, support, and information (Manojlovich, 2005).

According to Gacki-Smith, Juarez, and Boyett (2009), approximately 25% of members of the U.S. Emergency Nurses Association reported being exposed to physical violence more than 20 times during the 3 years prior to the survey period. In addition, 20% of members cited being verbally abused in excess of 200 times during the survey period (Gacki-Smith et al., 2009). Nurses who perceived that being verbally and physically abused by patients is part of the job reported a higher rate of abuse. Facility policies on violence and a supportive practice environment were associated with a decreased risk of physical violence in the emergency department (Gacki-Smith et al., 2009). The survey respondents stated that barriers to reporting violent incidents in the emergency department included an administrative climate that fostered the fear of reprisal and a low public image of the hospital (Gacki-Smith et al., 2009). Nurses also believed being a victim of violence in the emergency department demonstrated a lack of competence or a weakness in character (Gacki-Smith et al., 2009).

In 2005, a national survey was conducted on the factors related to patient abuse of nurses. In the survey, 218,000 nursing staff in hospitals and long-term care facilities

were asked two questions: "(a) During the past 12 months, did you experience a physical assault from a patient? (b) During the past 12 months, did you experience emotional abuse from a patient?" (Nauchreiner et al., 2005, p. 677). The reported job abuse was analyzed in relation to personal characteristics of the nurse, factors regarding the workplace climate, and job characteristics (Nauchreiner et al., 2005).

Another study included 12,218 nurses, 94% of whom were women with an average of 17 years of experience as a nurse (Nauchreiner et al., 2005). Almost one-fifth (19%) had earned at least a bachelor's degree in nursing; 75% were RNs, 24% were licensed practical nurses (LPNs), and the remaining 1% were registered psychiatric nurses (RPNs) (Nauchreiner et al., 2005). Thirty-four percent of the participants working in tertiary health care facilities, such as hospitals and nursing homes, reported being physical assaulted in the previous year, and 47% reported being emotionally abused during the same period (Nauchreiner et al., 2005). Interestingly, male nurses and inexperienced nurses reported a higher incidence of both types of abuse (Nauchreiner et al., 2005).

Nurses who had at least an undergraduate degree in nursing reported less physical assault than did other nurses, but the nurses' education level was not associated with the rate of reported emotional abuse (Nauchreiner et al. 2005). Nurses working in inpatient mental health units reported significantly more assaults than did nurses working in other settings; close to two-thirds of nurses in inpatient mental health units reported emotional abuse, and just under half reported physical abuse (Nauchreiner et al., 2005).

Nurses who cited positive relationships with administrators were 45% to 60% less likely to experience physical assault and emotional abuse. Nurses working longer than

12 hours and on evenings, nights, and weekends reported more verbal and physical abuse than did nurses working at other times (Nauchreiner et al., 2005). This finding suggests management support may be less available outside of daytime hours (Nauchreiner et al., 2005).

Spokes et al. (2002) explored the perspectives of 108 nurses who worked in acute admission, intensive care, and low security psychiatric units to identify staff behaviors and other factors that contribute to or reduce inpatient violence. According to 67 of the participants, one factor encouraging aggression was the lack of formal training related to the causes of aggression, especially on how to apply physical skills and distraction techniques (Spokes et al., 2002). Half of the participants cited weaknesses in their own and colleagues' interpersonal skills; for example, the participants reported being too confrontational, forceful, and diplomatic at times (Spokes et al., 2002). Forty-six participants indicated they did not always know when to walk away from a tense situation, were sometimes short tempered when tired, could not always remain objective, and missed opportunities to de-escalated patient behavior because they feared being hurt (Spokes et al., 2002).

The participants identified three factors related to decreasing the number of violent incidents. The nurses indicated that developing clinical skills in psychiatric nursing is the most important factor (Spokes et al., 2002). Developing interpersonal skills and selecting appropriate personnel also contribute to preventing and managing disruptive behavior. According to the participants, an integral part of the nursing role is being able to determine what amount of limit setting is appropriate when establishing boundaries with a patient (Spokes et al., 2002). Nurses must also be aware of their personality traits

because authoritarianism and a lack of intuition are significantly related to the incidence of inpatient violence (Spokes et al., 2002).

Winstanley and Whittington (2002) surveyed 375 physicians and allied health and nursing staff in a general hospital setting to identify whether patient aggression is associated with hospital workers' anxiety, coping styles, and burnout. The mean age of the participants was 37.9 years old, and 91.5% were female; 36% worked in medical units and 24% worked in surgical units encounters (Winstanley & Whittington, 2002). The participants reported frequent experiences with patient aggression. A subsample completed the State-Trait Anxiety Inventory, the Maslach Burnout Inventory, and the Coping Responses Inventory, and the researchers analyzed the results to determine whether short-term sequelae, such as emotional exhaustion and fatigue, resulted from aggressive encounters (Winstanley & Whittington, 2002). Winstanley and Whittington (2002) found that anxiety and coping responses are not correlated with the type or frequency of aggression; however, frequent victimization is significantly associated with an increase in burnout, emotional exhaustion, and depersonalization.

Gates, Fitzwater, and Succop (2005) examined the effectiveness of a violence training program in reducing the prevalence of patient violence. All of the 138 participants were nursing assistants working in long-term care, 94% were women, the mean age was 36 years old, and the mean of years of education was 11.76 (Gates et al., 2005). Most of the participants reported that they had received prior training on dealing with aggressive behavior (Gates et al., 2005). Half of the participants were assigned to the treatment group, and the other half were assigned to the control group. The treatment

group participated in nine 1-hour group training sessions and practiced simulated violence prevention training that was videotaped (Gates et al., 2005).

All study participants completed the State Trait Anger Inventory and the Knowledge and Self-Efficacy Survey before the training program began, immediately after the program ended, and 6 months later (Gates et al., 2005). Additionally, each participant maintained an assault log for 80 hours, documenting the number of assaults and the activities involved in the assaults (Gates et al., 2005). From analyzing the data through regression analysis, the researchers found a relationship between the incidence of assaults and the covariates of age ($p < .0001$), the number of assigned patients ($p < .05$), and patient anger ($p < .001$) (Gates et al., 2005). For the members of the treatment group, the means on the knowledge and self-efficacy scales improved immediately after the intervention (pre: 8.4140; post: 4.2340; error: 0.3960); however, these improvements were not evident 6 months following treatment (6 months: 0.110; error: 0.415) (Gates et al., 2005). Further, nursing assistants who had experienced more than six physical assaults prior to the training continued to experience more assaults than other nursing assistants after the training (Gates et al., 2005).

Arnetz and Arnetz (2001) surveyed 600 nursing staff, other clinical providers, and nonclinical staff regarding their experiences with physical and nonphysical violence during the preceding 12 months. The majority (66%) of those surveyed were females between the ages of 40 and 59(Arnetz & Arnetz, 2001). The researchers reported that 72.8% of the participants cited at least one incident of nonphysical violence; 21.3% cited at least one incident of physical violence (Arnetz & Arnetz, 2001). Those who had experienced nonphysical violence were 7.17 times more likely to experience physical

violence than those who had not experienced nonphysical violence (Arnetz & Arnetz, 2001).

The literatures discussed in this review indicate that age is not a clear indicator of a patient's likelihood of being violent. Factors that increase a health care worker's likelihood of being verbally or physically abused include previous exposure to violence, either physical or nonphysical, and a work environment that does not encourage reporting of patient on staff violence (Gates et al., 2005; Lanza, 2006). Two of the most concerning results of repeated exposure to workplace violence are the decreases in workers' self-efficacy and abilities to manage aggression (Dunn et al., 2007).

Kable, Guest, and McLeod (2011) conducted a cross-sectional survey with a representative sample of 5,044 Australian nurses, with the goal of identifying risk-management approaches for addressing resistance to care (RTC) episodes. RTC episodes are instances in which patients resist a variety of actions, from activities of daily living to medical care to participation in rehabilitative therapies (Kable et al., 2011). Of the 1,132 respondents, 80% reported being involved in RTC episodes during the previous month, with a mean of 8.5 incidents reported per participant. Incidents ranged from patients pulling away from staff, to verbal and physical aggression (Kable et al., 2011).

The participants were asked how many of the RTC episodes they had experienced included aggressive or violent behavior. Approximately four of the mean 8.5 incidents were perceived as aggressive (Kable et al., 2011). Nurses working in the emergency room, long-term care, and mental health experienced more RTC episodes (4.1–8.1) than nurses working in medical and surgical areas. Of the 839 participants who were involved in RTC episodes, 77% perceived that reporting did not lead to organizational change

(Kable et al., 2011). When asked about administrative support following RTC episodes, 885 participants reported that the most effective action in dealing with an episode was to talk with other staff; almost half of the participants did not consider counseling (Kable et al., 2011). Mental health nurses accessed counseling services significantly more often than other nurses in the study. Emergency room nurses were significantly less likely than other nurses to report receiving sufficient information and support after experiencing RTC episodes (Kable et al., 2011).

The findings discussed in this review of the literature also reflect the international prevalence of violence against nurses and the perception of health care workers that violence is part of the job. This attitude among health care providers, combined with the chronic underreporting of violent incidents, reinforces the normalization of violence, which further embeds violence in the workplace culture and inhibits the development of strategies to prevent and effectively manage aggression (Clements, DeRanieri, Clark, Manno, & Wolcik, 2005; Dunn, Elsom, & Cross, 2007; Pich, Hazelton, & Kable, 2010). Therefore, it is important to examine the factors that can mediate disruptive behaviors in health care settings.

Chapter 3

Chapter 3 contains the research questions and discussion of the research design. The chapter also contains details of the methodology, which includes the sample and setting, power analysis, methods for protecting participants, data collection, instrumentation, and data management and analysis.

Research Questions

The research questions guiding this study are when disruptive behavior occurs:

- Are code greens associated with symptoms of a medical and/or psychiatric diagnosis, denial of request, limit setting, and activity demand?
- Are activity demand, denial of request, and limit setting more likely to be associated with code green events than are symptoms of a psychiatric or medical diagnosis, and are denial of request, activity demand, and limit setting associated with verbal de-escalation, chemical restraint, and physical restraint?
- Are there relationships between incidents of disruptive behavior, time of day, and practice environment?

Research Design

The purpose of this descriptive retrospective study was to examine the antecedent factors associated with disruptive behaviors in veterans in inpatient hospital units and emergency rooms during code green events. In particular, the factors of limit setting, activity demand, and denial of request were investigated. The descriptive retrospective design involves measuring underlying change mechanisms as well as outcomes, providing information on which mechanisms are critical for influencing outcomes

(Cramer, 2004; Portney & Watkins, 2000; Shadish, Cook, & Campbell, 2002). The retrospective design was appropriate for the study because this design enables the examination of behavioral occurrences that are not ethically appropriate to investigate in a controlled study design.

Advantages of retrospective research include the ability to generate hypotheses that are then tested prospectively and the ability to easily and inexpensively access large amounts of existing data. Disadvantages include the difficulty in controlling bias and confounders, the lack of randomization and blinding when obtaining a sample, the reliance on the accuracy of written records to answer research questions, and causal and complex relationships between variables that are not easily explained Breakwell, Hammond, Fife-Schaw, & Smith, 2006; Cramer, 2003; Portney & Watkins, 2000). These disadvantages were managed through applying appropriate data collection and analysis techniques.

Methodology

Sample and setting. The study was conducted at a VHA medical center in the United States. Located in a large, diverse Southern city, the hospital is considered a major academic affiliate of medical and nursing education programs. The center contains 540 operational inpatient beds, and 18,060 patients were admitted in fiscal year 2009. Less than 1% of the all-adult inpatient population is female. Approximately one-third (37%) of the members of the inpatient population have co-occurring mental health diagnoses, such as posttraumatic stress disorder (15%), alcohol-use disorder (13.7%), and mood disorder (4.9%). Inpatient treatment occurs in four general medicine units, three

surgical units, three intensive care units, and three inpatient psychiatric units. The average length of stay is 5.7 days.

Care delivery in all inpatient units is based on team nursing, with the exception of care in the intensive care units, which is based on primary nursing. The medical center also has a group of primary care and mental health clinics (with 136,975 annual patient visits in fiscal year 2009) and a level-2 emergency room (with 34,729 visits in fiscal year 2009) (Veterans Support Service Center, 2009). Based on data from fiscal year 2008, the direct-care nursing staff at the medical center includes 574 RNs, 183 LVNs, and 153 NAs and health technicians (HTs) (Jordan, 2008).

The practice environment at the VHA medical center includes one RN per six patients in general medical-surgical and psychiatric inpatient units and one RN per two patients in intensive care units. The number of nursing personnel (RN, LVN, and HT/NA) present for a prescribed period is measured in 8-hour increments and is termed *man hours*. In this study, the number of man hours available to deliver patient care during a code green event is referred to as the practice environment.

Study data on patients and staff involved in incidents of disruptive behavior were obtained from code green monitor forms. A code green is defined as an emergency intervention in which a patient's behavior (a) creates a risk of imminent physical harm to the patient or others, (b) does not involve a weapon or criminal activity, and (c) requires staff resources beyond those readily available to de-escalate or control the behavior (Blake, 2011). Code green incidents are evaluated by the Code Green Committee to determine whether patient right have been violated and/or patients and staff have been injured. The Code Green Committee is a subcommittee of the Disruptive Behavior

Committee. The membership of the committee is a multi-disciplinary team of a psychiatrist, a psychologist, a patient affairs representative, a risk management representative, and three RNs. Therefore the unit of study is each documented code green incident.

Any member of the health care delivery team, including unit clerks and other administrative personnel, can initiate a code green. Code green team members are primarily any nursing staff from the inpatient psychiatric unit that are designated to respond to a code green incident on a given day. The VHA medical center police, along with other nursing staff who have completed annual competencies in a course on preventing and managing disruptive behavior are also members of the code green team.

Code green incidents examined in this study occurred in fiscal years 2007 to 2010 in all inpatient hospital units and the emergency room. Code green incidents were excluded if they were cancelled prior to the arrival of the code green team or if the incidents occurred in administrative areas of the hospital, such as in the travel, consumer affairs, or hospital director's office.

Power analysis. To increase the chances of finding any significant interactions, it was crucial to fully consider the design for testing the mediator effect. The effect size for interaction and the overall effect size were estimated prior to collecting data. According to MacKinnon et al. (2002), a sample size of at least 200 will demonstrate sufficient power (i.e., greater than .50 for a medium-effect size).

Human protection. The research protocol was reviewed by the Institutional Review Board of Baylor College of Medicine (an academic affiliate and conduit for the institutional review process at the VHA medical center) and the University of Missouri–

St. Louis. Data for this research were collected entirely from existing databases. No data were collected from human subjects. No names or other forms of patient and staff identify were included with the data. To ensure the data remained secure, they were stored in a locked office that is monitored according to security policies at the VHA medical center. In discussing the results of the data analysis, the data are discussed in aggregate.

Data collection. The procedure for collecting data was patterned after the process Quanbeck et al. (2007) used. Data were taken from incident reports of disruptive behavior and assaults (stored in the code green incident database) to obtain information on the disruptive behavior events that occurred before, during, and after the incidents. Data were categorized in a similar fashion from the code green monitor. Each electronic medical record was reviewed to identify information on (a) denial of request, (b) activity demand, and (c) limit setting. In addition, the medical records were reviewed to confirm the interventions used. The code green database contained (a) information related to the date and time of the incident; (b) the patient's medical-psychiatric diagnosis and/or reason for the code green; (c) a general description of the incident (e.g., what the patient did to prompt the code green alarm and the interventions the code green team used); (d) identification of the verbal de-escalation techniques, chemical restraints, and physical restraints used; and (e) a description of any staff and patient injuries. Data were also obtained from the VHA nursing man hours report regarding the number of nursing staff working on the day and at the time of the code green incident, as well as the number of patients in the unit (patient census). To identify code green incidents that met the study criteria, the investigator reviewed the code green database to identify all code green

incidents that occurred on all inpatient units and the emergency room. Each eligible incident was then entered into a Microsoft Excel spreadsheet, and the data were transferred to the statistical software SPSS for analysis.

All code green incidents in the electronic medical records were reviewed by the primary investigator, who is the chairperson of the Code Green Committee and is an advanced practice nurse in psychiatric mental health. To ensure a measure of objectivity in the review of medical records existed, a psychologist and a psychiatrist each reviewed three of the same code green incidents as the advanced practice nurse. The independent observations were then compared for inter-rater reliability using the kappa statistic.

Instrumentation. The investigator developed an instrument to organize the data collected from the code green database and the electronic medical records for selected demographic variables (medical and psychiatric diagnosis, age, and sex). The database information came from the code green monitor form (see Appendix A) completed for each code green event. The form includes information such as the date and time of code, the code initiator, the reason for calling code green, the incident antecedent (denial of request, activity demand, limit setting), the type of intervention used (verbal intervention, chemical restraint, physical restraint, seclusion), the patient's mental status (confused, delirious, demented), and whether the patient was on close observation (1 nursing staff for every 3 patients), 1:1 (1 nursing staff for 1 patient) or in the general unit nurse patient ratio for that given day. The validity of the information collected on the form was established based on previous research (Morrison, 1989; Morrison, 1992; Newbill, 2010; Quanbeck et al., 2007). In addition, the form was reviewed by the Code Green Committee.

Data management and analysis. The data collected in the study were analyzed using the statistical software SPSS. The details of the data management process and statistical analysis process are described below.

Data management. The diagnostic history codes were classified into one general category of medical diagnoses and nine categories of mental health diagnoses (depression, psychosis, substance use, delirium, bipolar manic, traumatic brain injury (TBI), post-traumatic stress disorder (PTSD), anxiety-not otherwise specified (nos), and dementia). As many diagnoses as applicable to the patient were documented. A variable was constructed to represent the total number of mental health diagnoses in each patient.

The reasons for the code green event were organized into eight categories: causing self-harm, destroying property, harming others, threatening to harm others, denying reasonable requests, leaving against medical advice (AMA), refusing treatment/activity demands, and not responding to limit setting. Multiple reasons could be assigned to each event. A variable was constructed to represent the total number of reasons, with a possible range of 1 to 8.

The de-escalation methods were classified into six categories of increasing intensity. The lowest level of intensity starts with (1) verbal de-escalation, (2) chemical restraint (medication), (3) manual hold, (4) restraint, (5) seclusion, and ends with (6) turnover to police as the highest level of intensity. Multiple types of de-escalation methods could be assigned to each event. A variable was constructed to represent the total number of de-escalation methods. The highest-intensity method was determined for each code green event. The time of the event was categorized as occurring during the

day (7:00 to 4:00), evening (4:00 to 12MN), or night (12MN to 7:00). Each event was assigned only one of these time categories.

For some of the analyses, the total RN man hours per event were classified into five categories: 1.00 to 2.00 hours, 2.25 to 3.00 hours, 3.50 to 4.00 hours, 4.50 to 6.00 hours, and 6.50 or more hours. These categories were based on examining the empirical distribution of values reported for the events and dividing into groups of approximately equal percentages of patients. For other analyses, as described in the Statistical Analyses section below, the total RN man hours per event were analyzed as a continuous variable because the number of RNs at any given time could vary.

The total LVN man hours per event were classified into four groups based on the empirical distribution of responses: 0.25 to 0.75 hours, 1.00 hour, 1.25 to 1.75 hours, and 2.00 or more hours). As with RN man hours, the total LVN man hours were analyzed as continuous for some analyses. The total HT/NA man hours per event were classified into four groups based on the empirical distribution of responses: 0.50 to 1.50 hours, 2.00 to 2.75 hours, 3:00 to 3.50 hours, and 3.75 or more hours.

Statistical analyses. Research question 1 (Are code greens associated with symptoms of a medical and/or psychiatric diagnosis, denial of request, limit setting, and activity demand?) was addressed by examining the percentages of patients with each type of code green, calculated for each diagnostic history code. This process permitted examination, for example, of whether there was a higher percentage of patients with depression who experienced a specific reason (or the same multiple reasons) for code green, compared to patients without depression.

The association between the reason for the code green and each of the diagnoses was examined using the chi-square test to determine whether the observed frequencies differed from the theoretical frequencies in Quanbeck et al. (2007); *p*-values of less than or equal to .05 were considered statistically significant. For example, a *p*-value of .05 or less for the association between depression and patient self-harm would indicate that patients with a depression diagnosis differed from patients without a depression diagnosis in terms of whether the patient harmed himself or herself (Portney & Watkins, 2000; Shadish et al., 2002).

In addition, the Pearson product-moment correlation was calculated to assess whether there is a linear association between the total number of reasons for the code green event and either the total number of diagnostic history codes or the total number of mental health diagnoses. Negative correlations would indicate that as the number of diagnoses increases, the total number of reasons for the code green event decreases. Conversely, positive correlations would indicate that as the number of diagnoses increases, the number of reasons for the code green event increase. For the Pearson product-moment correlation, *p*-values of .05 or less were considered statistically significant (Portney & Watkins, 2000; Shadish et al., 2002).

To address research question 2 (Are activity demand, denial of request, and limit setting more likely to be associated with code green events than are symptoms of a psychiatric or medical diagnosis, and are denial of request, activity demand, and limit setting associated with verbal de-escalation, chemical restraint, and physical restraint?), the percentage of patients with each type of code green was calculated for each de-escalation method. This calculation was used to determine, for example, whether a

higher percentage of patients who experienced one or more given reasons for a code green event were treated with verbal de-escalation compared to patients who experienced one or more different reasons for a code green even (Portney & Watkins, 2000; Shadish et al., 2002).

The association between the reason for the code green and each de-escalation method was examined using ordinal regression; *p*-values of .05 or less were considered statistically significant. The association between the reason for the code green and the highest intensity de-escalation method was also assessed using ordinal regression (McCallagh, 1980).

Research question 3 (Are there relationships between incidents of disruptive behavior, time of day, and practice environment?) was addressed by calculating the percentages of patients with each type of code green and identifying any associations with the times of day the events occurred, the patient unit census, the categories of the numbers of RN man hours, the categories of LVN man hours, and the categories of HT/NA man hours.

Because patient unit census and the number of RN, LVN, and HT/NA man hours are continuous variables, the relationship between each of these variables and the reason for each code green event was examined using *t*-tests (Portney & Watkins, 2000). Using *t*-tests determined whether the reason for each code green event differs significantly based on patient unit census and number of various types of man hours (e.g., whether the size of the patient census is associated with an event involving patient self-harm).

Chapter 4

Chapter 4 contains discussion of the findings of this study as they related to the three research questions:

- Are code greens associated with symptoms of a medical and/or psychiatric diagnosis, denial of request, limit setting, and activity demand?
- Are activity demand, denial of request, and limit setting more likely to be associated with code green events than are symptoms of a psychiatric or medical diagnosis, and are denial of request, activity demand, and limit setting associated with verbal de-escalation, chemical restraint, and physical restraint?
- Are there relationships between incidents of disruptive behavior, time of day, and practice environment?

The Kappa statistic was used to compute the interrater reliability for the primary investigator (the advanced-practice nurse) compared with that of a psychologist reviewer and a psychiatrist reviewer. The conclusions related to diagnostic history, reasons for code greens, and intervention methods were found to be in substantial agreement, with $K = 0.72$ ($p > .0025$).

Demographic Data

A total of 432 code green incidents during 2007 to 2010 were reviewed. Table 1 shows the frequency of code green incidents in each area of care delivery. As indicated in Table 1, over 34% of code green incidents occurred in inpatient mental health units. Interestingly, slightly fewer than 26% of the code green incidents occurred in the emergency room, which is a point of entry for all inpatient admissions. The number of

code green incidents in the outpatient clinic, the other point of entry for inpatient admissions was not evaluated in this study. Approximately the same number (25.7%) of green code events occurred in inpatient medical units as in the emergency room.

Table 1

Code Green by Care Delivery Area, 2007 to 2010

Care delivery service	Frequency	Percent
Extended care/rehabilitation	22	4.9
Inpatient surgical	25	5.6
Inpatient medical	115	25.7
Inpatient psychiatry	153	34.7
Emergency room	116	26.0
Total	432	100.0

The mean age of the code green patient population was 55.14 years old (*SD* = 14.804), with 29% ranging from 50 to 59 years old (see Table 2). Patients over the age of 50 were involved in twice as many code green incidents as were younger patients. However, the mean age of the general inpatient population from 2007 to 2010 was slightly older than those patient involved in code green incidents ranging from 60–69. Female veterans represented 5.4% of the general inpatient population. Females represented less than 1% of the code green incident population.

Table 2

Patients with Code Green Incidents, by Age

Age	Frequency	Percent
Under 30	29	6.71
30–39	41	9.49
40–49	69	15.97
50–59	126	29.17
60–69	100	23.15
70–79	33	7.64
80 or older	34	7.87

The patients who experienced code green incidents were diagnosed with 552 diagnoses, as indicated on the code green monitor forms. Each of the patients who experienced a code green event had at least two diagnoses (medical, psychiatric, or both) Of these patients, 59.86% had comorbid medical and psychiatric conditions, 27.67% had only psychiatric diagnoses, and 12.47% had only a medical diagnoses (12.47%). These findings are presented in Table 3.

Table 3

Code Green Incident by Diagnosis

Incident	Diagnosis	Frequency	Percent
Code green	Comorbid	331	59.86
Code green	Psychiatric only	153	27.67
Code green	Medical only	68	12.47

Results for Research Question 1

Answering the first research question involved examining whether symptoms of medical and psychiatric diagnoses are associated with code green events in an inpatient VA hospital. Answering the research question also involved examining whether denial

of request, limit setting, and activity demand are antecedents of disruptive patient behavior culminating in code green events in an inpatient VA hospital.

Chi-square statistics were calculated to examine any associations between (a) the reasons for a code green and (b) any medical diagnosis and/or nine mental health diagnoses. The chi-square calculations are presented in Appendix B. The Pearson product-moment correlation was calculated to determine whether there is a linear association between the total number of reasons for the code green event, diagnostic history codes, and the total number of mental health diagnoses.

Of the 432 patients with code green events during 2007 to 2010, 248 without a diagnosis of depression and 44 patients with a diagnosis of depression did not experience an activity demand; 133 patients without a diagnosis of depression and seven patients with a diagnosis of depression did experience an activity demand. These frequencies are significantly different, $X^2(1, N = 432) = 9.21$, $p = 0.02$. When patients with depression were faced with an activity demand, they were more likely to exhibit disruptive behaviors. Regarding patients with a comorbid psychiatric and general-medical diagnosis, 125 did not experience an activity demand and 96 did experience an activity demand, $X^2(1, N = 432) = 25.13$, $p = 0.0001$.

The chi-square results indicate a statistically significant relationship between code green incidents and the following mental-health diagnoses: psychosis, X (1, $N = 78$) =11.84, $p = 0.0006$; substance-use disorder, X (1, $N = 72$) = 8.68, $p = 0.003$; anxiety not otherwise specified, $X^2(1, N = 21) = 4.72$, $p = 0.02$; and dementia, X (1, $N = 12$) =7.52, $p = 0.006$). Patients with these diagnosis were significantly more likely to experience a code green incident related to a denial of request, particularly regarding requests to leave

against medical advice, to see a provider, and to leave the nursing unit to smoke. Post traumatic stress disorder was the only diagnosis significantly associated with limit setting—14.81% of patients with PTSD, compared to 4.94% of other patients, $X^2(1, N = 27) = 4.70$, $p = 0.03$.

A Pearson product moment coefficient was computed for the total number of code green reasons, the medical diagnosis, and the psychiatric diagnoses. The statistical analysis indicates a significant correlation between the total number of code green reasons and the medical diagnosis, $r = 0.14$, $n = 68$, $p = 0.003$. There was also a significant correlation between the total number of code green reasons and psychiatric diagnoses, $r = 0.15$, $n = 153$, $p = 0.001$.

The chi-square results indicated a relationship exists between the self-harm reasons for code green and the following mental health diagnoses: psychosis, $X^2(1, n = 78) = 5.64$, $p = 0.01$; substance-use disorder, $X^2(1, n = 72) = 4.78$, $p = 0.02$; and traumatic brain injury, $X^2(1, n = 4)$ $n = 10.26$, $p = 0.00$). Patients with these diagnoses were more likely to experience a code green incident related to self-harm than were patients with depression, delirium, PTSD, dementia, anxiety not otherwise specified, and the general medical diagnosis.

The chi-square test was also used to determine whether a relationship exists between the (a) code green reason of harming others and (b) patient diagnoses. Patients diagnoised with bipolar disorder were more likely to experience a code green related to harming others, $X^2(1, n = 33) = 3.97$, $p = 0.04$), than were patients who did not have bipolar disorder. However, 56 of the 331 veterans with a comorbid psychiatric and

medical diagnosis also had disruptive behaviors related to harming others, $X^2(1, N = 56) = 6.30$, $p = 0.01$.

Results for Research Question 2

Answering the second research question involved examining activity demand, denial of request, and limit setting to understand whether they are more associated with code green events than are symptoms of a psychiatric or medical diagnosis. Answering the research question also involved determining whether denial of request, activity demand, and limit setting are associated with verbal de-escalation, chemical restraint, and physical restraint. The first step in answering research question 2 involved; classifying the de-escalation methods for code green incidents into six categories of increasing intensity. The six categories were labeled verbal de-escalation, medication, manual hold, restraint, seclusion, and turnover to police. As shown in Table 4, verbal de-escalation was used most frequently, followed by chemical restraint. The other methods were used much less frequently.

Table 4

Total Number of De-escalation Methods for Code Green

De-escalation method	Frequency	Percent
Verbal de-escalation	202	46.76
Chemical restraint	141	32.64
Manual hold	63	14.58
Mechanical restraint	20	4.63
Seclusion	3	0.69
Turnover to police	3	0.69
Total	432	

Ordinal regression analysis was completed to determine the relationship between de-escalation methods and the general medical diagnosis, depression, psychosis, substance abuse, delirium, bipolar disorder, TBI, PTSD, anxiety-nos, and dementia. Likelihood estimates were generated for the whole model. Wald chi-square test statistics were generated for each effect. The results indicate that of the diagnosis-derived predictors, depression is significantly associated with verbal de-escalation, which is the least intrusive de-escalation method, B = -0.6509, $X^2(1) = 5.1550$, p =0.02 (see Appendix C). Among the derived predictors (activity demand, denial of request, and limit setting) for code green reasons, activity demand is significantly more likely associated with turnover to police, which is the most instrusive method of de-escalation, B = 0.3473, $X^2(1) = 3.3974$, p = 0.0653 (see Appendix C).

Results for Research Question 3

Answering the third research question involved determining whether relationships exist between incidents of disruptive behavior, time of day, and practice environment. Potential relationships were examined through chi-square analysis. The results indicate code green events are significantly associated with the time of day. Specifically, patients' disruptive behavior involving potential self-harm occurred most often from 4:00 p.m. to midnight, $X^2(2, n = 43) = 6.96$, p = 0.03.

The *t*-test was used to examine the relationship between patient census; number of RN, LVN, and HT/NA man hours; and each reason for code green. Because the patient unit census and the number of RN, LVN, and HT/NA man hours are continuous variables, the relationship between the reason for each code green event and each of these continuous variables was examined using the *t*-test. Using this test was appropriate for

examining whether the reason for the code green event differed significantly based on patient unit census and number of various types of man hours (e.g., whether the size of the patient unit census was associated with whether an event of disruptive behavior occurred). It is important to note that though multiple versions of the data set were reviewed, large amounts of data regarding man hours and censuses were missing or inconsistent. Therefore, rather than examining each category of man hours (RN, LVN, HT/NA) separately, all nursing staff data were combined and examined in aggregate. The results indicate a significant relationship between the total pooled nursing staff man hours and the reason for code green-patient harming others, $M = 8.14$, $SD = 2.09$, $t(-2.33)$, $p = 0.02$, than patients who did not have harming others as a reason for code green.

Summary

This study involved examining code green incidents, specifically whether relationships exist between disruptive patient behavior; the interpersonal factors of denial of request, activity demand, and limit setting; psychiatric and medical diagnoses; and the practice environment. The findings from the statistical tests indicate that significant antecedents of disruptive behavior include a patient's medical and/or psychiatric diagnosis, denial of request, and activity demand. The findings also indicate that code green teams use low-intensity de-escalation methods when interacting with patients during code green incidents. The study results also show that green code events are more likely to occur from 4:00 p.m. to midnight. The findings are inconclusive regarding the relationships between code green events, patient census, and nursing staff man hours because of missing and inconsistent values in the data set.

Chapter 5

Chapter 5 contains a summary of the study and discussion of the analysis results. The chapter also includes discussion of the study's limitations and implications of the findings in regard to theory, nursing science, and nursing practice. In addition, recommendations for future research are presented.

Summary of Study

More nonfatal assaults against workers occur in the health care industry than in all other service-oriented industries in the United States. Nursing assistants, nursing attendants, and orderlies suffer the most nonfatal assaults resulting in injury, and 45% of worker assaults in the industry result in lost work days (Janocha & Smith, 2010). Although researchers have examined causal factors of hospital violence, the findings have been inconsistent because the study variables tend to be related to characteristics of the nurse or patient rather than interaction between the nurse and patient (Duxbury J. , 1999; Duxbury J. , 1999; Gates, Fitzwater, & Deets, 2003; Kunik, Snow, & Davila, 2010; Lancee, Gallop, McCay, & Toner, 1995) .

Watson (2005) introduced the concept of caritas literacy to emphasize that caring, not technical skills and competencies, "is intrinsic to the actual nurse-patient interaction" (p. 63). This interaction results in measurable therapeutic outcomes. The concept of caritas literacy was used in this study as a model for measuring the therapeutic outcomes of nurse-patient interaction in a VA medical center.

Quanbeck et al. (2007) and Newbill et al. (2010) found that aversive staff-patient interaction is a mediating cause of violence in psychiatric inpatient settings. Prior to the

current study, researchers have not generalized Quanbeck et al.'s and Newbill et al.'s finding to hospital patients in general and to veteran hospital patients in particular. An objective of this study was to determine whether a veteran's diagnosis and the interaction factors of activity demand, denial of request, and limit setting are antecedent factors to disruptive patient behaviors in an inpatient veteran's hospital in which code greens are initiated by any health care provider. Achieving this objective also accomplished he objective of illuminating caritas literacy (Watson, 2005) while categorizing disruptive behavior in a manner similar to the process identified by Quanbeck et al. and Newbill et al. Examining activity demand, denial of request, and limit setting as a part of the caring process showed that the lack of caritas literacy is associated with disruptive behavior.

Caring Model for Preventing and Managing Disruptive Behavior

In this study, the interaction between the nurse and patient was evident during a code green event because the disruptive behavior activated the code green process of de-escalation. The de-escalation process is based on the caring model of preventing and managing disruptive behavior. The premise of this model is that when caritas literacy is absence during a code green event, the nursing staff implements a clinical intervention that focuses on using verbal de-escalation, with the intent to restore caritas literacy to the practice environment. Caritas literacy was clearly present during code green events examined in this study; nursing staff engaged in caring actions and used verbal de-escalation 46.76% of the time. When verbal de-escalation was not effective, chemical restraint (the mildest from of restraint) was used 32.64% of the time and manual hold was used 14.58% to keep the disruptive patients from hurting themselves. Mechanical restraint, seclusion, and turnover to the police, which indicate an absence of

caritas literacy, were used less than 5% of the time, a clear indication the nursing staff at the VA medical center used forceful measures only as a last resort.

Discussion of Results

The results regarding research question 1 show the prevalence of disruptive behavior in a general VA hospital that includes an inpatient psychiatric services unit and an emergency room. Many (34.7%) of the disruptive-behavior events that resulted in code green incidents occurred in an inpatient psychiatric unit. The findings regarding research question 1 are a justification for the large amount of research related to violence prevention in psychiatric units. It is important to note that the study's findings indicate that code green events occurred at similar rates in general medicine units (25.7%) and in the emergency room (26%).

The results of the study indicate an association exists between (a) code green events involving denial of request and activity demand and (b) patients diagnosed with depression, traumatic brain injury, substance-use disorder, psychosis, and a general medical diagnosis. These findings are similar to those of Gacki-Smith et al. (2009). These researchers asked emergency room nurses to identify their perceptions of the precipitators of emergency room violence. The results that were significant at $p < .001$ were (a) delays in receiving treatment, (b) patients who believe staff are uncaring, (c) patients who are intoxicated, and (d) patients with psychiatric diagnoses. Though the findings in the current study do not cover all of the reasons Gacki-Smith et al. identified, this study's findings illuminate that the work environment and nurse-patient interaction can be antecedents of disruptive patient behavior.

Regarding research question 2, nursing staff in this study used de-escalation methods aimed at ensuring the following, which are elements of caritas literacy:

- Assurance of human presence
- Respectful deference
- Professional knowledge and skill
- Positive connectedness
- Attentive to others' experiences

The de-escalation method the nursing staff used most frequently was verbal de-escalation, which is also the least-restrictive method. This method was used 72 % of the time with code green events associated with activity demand. The ability of the code green team to effectively de-escalate disruptive behavior incidents illuminates the team members' abilities to transform tasks into caring-healing interactions while implementing sound clinical reasoning in evaluating circumstances and situations (Watson, 2005).

Of the 36 cases of disruptive behavior associated with denial of request, only seven were addressed with manual holds. Patients may perceive that manual holds are a way for nursing staff to exercise control over patients or that manual holds indicate vulnerability in the patients and the staff. None of the manual holds examined in this study escalated to the level of seclusion or mechanical restraint. Rather, the manual holds consisted of administering medication and allowing patients time to calm down after the incident. These de-escalation practices are consistent with Delaney and Johnson's (2006) descriptions of caring and connecting: "Staff's efforts at keeping the unit safe meant not just being and remaining aware of patients but also intervening to help patients deal with frustrations and episodes of dysregulation" (p. 202).

In contrast, the reason for code green-activity demand was most likely associated with the nursing staff using mechanical restraint, the most-restrictive method of intervention other than turning over to the police ($p = 0.06$). The code green monitor forms frequently contained comments indicating the patients were being directed to wait for services or participate in unwanted treatments. This finding is consistent with Bredthauer et al.'s (2005) report that restraints are more frequently used when patients have decreased cognitive functioning and cannot complete the activities involved in daily living ($p = 0.035$).

In terms of research question 3, the time of day is significantly associated with the reason for the code green event; the majority of code green incidents occurred on the evening shift. The findings regarding the relationship between the code green reason and staff man hours are inconclusive because of the large amounts of information missing from the medical center database regarding individual nursing units. Combining the categories of man hours showed a significance (t-value = -2.31, $p = 0.02$) with time of day and self harm. The large amounts of missing data from various nursing units may suggest that if a unit lacks adequate man hours, nurses may prioritize the care delivery process rather than entering code green data.

This circumstance relates to the findings of Eschiti and Hamilton (2011), who conducted interviews with critical care nurses about what happens in units during off-peak hours. One nurse commented:

> 'It doesn't make sense for me to say during the day you can have eight nurses, and at night you can have seven. I'm in a medical unit that's always full; we need

someone at the desk answering these phones. So that's a challenge in my philosophy because that's not how I see my nurses at the bedside'. (p. 64)

This commentary points to issues regarding the practice environment and the availability of nurses to provide seamless care to patients. According to the disruptive-behavior prevention model, the lowest methods of de-escalation restore caritas literacy are associated with verbal de-escalation, chemical restraint, and manual hold. However, safe, high-quality care depends not only on ensuring a unit has the appropriate number of man hours but also on ensuring a unit has the appropriate mix of nursing skills and the availability of support services throughout the hospital.

Study Limitations

The analyses conducted to answer the research questions were restricted to univariate comparisons of the variables of interest. The analyses allowed for examining the association (a) between each reason for the code green event and each type of diagnosis, (b) between each reason for the code green event and each de-escalation method, and (c) between each reason for the code green event and the time of day, patient census, and practice environment (nursing man hours). Because of the substantial amount of missing data regarding man hours, the association between reason for the code green event and the practice environment could not be determined. Since a large number of univariate comparisons were conducted, the probability of identifying some associations as significant at the $p = .05$ level was high. This circumstance is termed a multiple comparisons problem. Because this study was an initial examination of the various associations, using a liberal *p*-value of .05 could be justified.

Although reviewing the code green monitor form yielded a significant amount of information regarding code green events, there was still a need to review patient medical records. It is unclear whether nursing staff on the code green team were taught how to complete the code green monitor form in a manner that would yield more event-related information. However it may be unrealistic to expect a large amount of patient information to be documented outside of a medical record. Another limitation of this study is the lack of information on the continuing education that code green nurses complete regarding disruptive behavior.

Implications for Nursing Theory and Practice

Watson's (2008) theory of human caring, specifically caritas literacy, comprised the conceptual framework for this study. The findings from this investigation show a relationship between the antecedents for disruptive behavior and the interactional reason for code green-denial of request, activity demand and limit setting. The findings suggest that in patient care situations, nurses who demonstrate expert caritas literacy can prevent or decrease the impact of disruptive behavior and in turn improve patient care outcomes.

For nurses to develop expertise in caritas literacy, the curricula in pre-service and in-service education programs must have a greater focus on civility and interpersonal communication. This education should not only focus on psychiatric care, where disruptive behavior is more common, but also on general medical care and emergency room care. The challenge regarding nursing education and in-service education lies in weaving meaningful experiences in already-crowded curricula and in busy practice settings, where nurses must prioritize their time. The rhetorical question is, How can

educators and employers of nurses afford to not equip nursing staff—who have been identified to be at the greatest risk of harm because of disruptive behavior—with the assessment skills needed to avert this substantial problem.

In addition, caring is a qualitative outcome that has gained increased publicity through forums such as the Magnet Hospital designation because patient-satisfaction scores are considered a critical success factor. The findings in this study indicate that fostering a caring practice environment enhances opportunities to increase the frequency of authentic caritas literacy and consequently patient satisfaction.

Recommendations for Future Research

Future research might continue to build on existing research regarding interventions that focus on patient-nurse interaction. Researchers should create methodologies to measure the effects of violence-prevention programs on patient disruptive behavior and nursing staff injuries. Because this study found similar rates of disruptive behavior in psychiatric units and general medical units, it is important to note that research is needed in a variety of patient care settings which includes the practice environment factors of staffing and resource capacity to better understand the levels of support required. Further, the violence-prevention guidelines developed by the National Institute for Occupational Safety in 1970 (U.S. Department of Labor, 2012) should be operationalized and standardized so outcomes can be effectively measured. In particular, the outcomes related to the following guidelines should be studied: (a) how violence-prevention programs are implemented and communicated to all employees; (b) the effectiveness of current processes of advising patients and visitors that violence, verbal and nonverbal threats, and related behavior are tolerated; and (c) the effect of trained

response teams, such as the code green team, on the outcomes of disruptive behavior. It is important to note that the study's findings indicate that code green events occurred at similar rates in general medicine units (25.7%) and in the emergency room (26%).

Conclusions

Although progress has been made in developing policies to prevent violence in health care facilities, nurse educators and health care leaders must create and implement processes for ensuring a safe practice environment for nurses. Disruptive behavior compromises not only the care outcomes of patients but also the ability of nurses to function as members of multidisciplinary teams. In addition, if disruptive behaviors and the accompanying risk of injury are not decreased, recruiting and retaining nurses may become more difficult, thus exacerbating the current nurse shortage.

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Appendix A: Code Green Monitor

Date: _____ Time Code Called: _____ Unit/Hospital Area: _____

Patient name: _____SSN:_____

Age: _____Diagnostic History From CPRS:

☐ Depression=1 ☐Psychosis=2 ☐Substance Use=3 ☐Delirium=4 ☐ Bipolar=5

☐ Head Trauma/TBI=6 ☐ PTSD=7 ☐Dementia=8 ☐ Anxiety=9

☐ Medical DX=10_____

Designated RN Team Leader (print name):

_____

Team Members Responding to the Code (print name): Arrival Time:

1. _____ _____
2. _____ _____
3. _____ _____
4. _____ _____
5. _____ _____

Unit RN (print name, if applicable): _____

Person Calling Code (print name): _____

Data Elements:

1. Time from calling of code to arrival of all team members: ___ min. Time until Team left: ___ min.
2. Reason for calling code (check all applicable): ☐ Pt. suicidal/self-harm=1

☐ Pt. threatening self-harm=2 ☐ Pt. threatening self-harm=3,

☐ Pt. harming others=4 ☐ Pt. threatening to harm others=5

☐ Pt. denied a reasonable request =6 ☐ Pt. leaving AMA=7

☐ Pt. refusing treatment=8 ☐ Pt. not responding to limits=9

☐ Other:

_____

_____

3. Was code cancelled? ☐ Yes ☐ No
4. Unit/Area staff cleared other patients from area? ☐ Yes ☐ No
5. Unit/Area staff had appropriate equipment ready for team? ☐ Yes ☐ No
6. Code Green Bag Arrived? ☐ Yes ☐ No
7. Interventions by Code Green Team (check all applicable):

☐ Verbal De-escalation=1 ☐ Medication=2 ☐ Manual hold=5

☐ Seclusion=3 ☐ Restraint=4 ☐ Turned over to Police=6

8. Injury: ☐ Patient ☐ Staff ☐ No injury
9. Patient turned over to: ☐ Police ☐ ER ☐ Unit calling Code

☐ Escorted from grounds

10. Debriefing conducted? ☐ Yes ☐ No
11. Did Unit RN or Person Calling the code stay until Code Green Completion?

☐ Yes ☐ No

12. Did Mental Health Care Line Psychiatrist/Resident Attend Code Green?

☐ Yes ☐ No

_____

To be completed by Code Green Initiator (Write 2 complete sentences to describe areas for improvement)

13. What could your unit/area have done differently to avert this Code Green?

1._____

_____

2._____

_____

14. The Team Leader reviewed areas for improvement with me and unit/area staff

☐ Yes ☐ No

15. If Code Green happened on a unit, are all on-duty nursing staff current with Prevention and Management of Disruptive Behavior Training?

☐ Yes ☐ No

RN Team Leader:_____

Code Green Caller:_____ _____

Appendix B: Chi-Square Calculations

Diagnosis	Statistic	Self-harm	Threat of to harm others	Destruction of property	Refusal of treatment/ activity demand	Denial of request	Against medical advice	Limit setting
Depression	Chi-square	$X^2(1) = 1.132$	$X^2(1) = 2.929$	$X^2(1) = 0.011$	$X^2(1) = 9.213$	$X^2(1) = 0.038$	$X^2(1) = 0.001$	$X^2(1) = 0.351$
	Level of sig.	$p = 0.28$	$p = 0.08$	$p = 0.91$	$p = 0.002$	$p = 0.84$	$p = 0.96$	$p = 0.55$
Psychosis	Chi-square	$X^{2(1)} = 5.636$	$X^2(1) = 0.075$	$X^2(1) = 0.033$	$X^2(1) = 1.989$	$X^2(1) = 2.201$	$X^2(1) = 11.840$	$X^2(1) = 0.650$
	Level of sig.	$p = 0.01.$	$p = 0.78$	$p = 0.85$	$p = 0.15$	$p = 0.13.$	$p = 0.0006.$	$p = 0.42$
Substance abuse	Chi-square	$X^2(1) = 4.783$	$X^2(1) = 0.367$	$X^2(1) = 0.317$	$X^2(1) = 2.164$	$X^2(1) = 3.127$	$X^2(1) = 8.682$	$X^{2(1)} = 0.151$
	Level of sig.	$p = 0.02.$	$p = 0.54$	$p = 0.57$	$p = 0.14$	$p = 0.07$	$p = 0.003$	$p = 0.69$
Bipolar	Chi-square	$X^2(1) = 1.524$	$X^2(1) = 3.971$	$X^2(1) = 0.017$	$X^2(1) = 0.255$	$X^2(1) = 1.397$	$X^2(1) = 0.187$	$X^2(1) = 0.106$
	Level of sig.	$p = 0.21$	$p = 0.04$	$p = 0.89$	$p = 0.61$	$p = 0.23$	$p = 0.66$	$p = 0.74$
PTSD	Chi-square	$X^2(1) = 3.190$	$X^2(1) = 0.081$	$X^2(1) = 4.705$	$X^2(1) = 0.552$	$X^2(1) = 0.049$	$X^{2(1)} = 2.357$	$X^2(1) = 0.105$
	Level of sig.	$p = 0.07$	$p = 0.89$	$p = 0.03$	$p = 0.45$	$p = 0.82$	$p = 0.12$	$p = 0.745$
Anxiety not otherwise specified	Chi-square	$X^2(1) = 0.158$	$X^2(1) = 0.016$	$X^2(1) = 1.298$	$X^2(1) = 0.148$	$X^2(1) = 0.407$	$X^2(1) = 4.728$	$X^2(1) = 2.505$
	Level of sig.	$p = 0.69$	$p = 0.89$	$p = 0.25$	$p = 0.70$	$p = 0.52$	$p = 0.02$	$p = 0.11$
TBI	Chi-square	$X^2(1) = 10.268$	$X^2(1) = 0.063$	$X^2(1) = 2.909$	$X^2(1) = 0.101$	$X^2(1) = 0.378$	$X^2(1) = 1.019$	$X^2(1) = 0.661$
	Level of sig.	$p = 0.001$	$p = 0.80$	$p = 0.08$	$p = 0.75$	$p = 0.53$	$p = 0.31$	$p = 0.41$
Delirium	Chi-square	$X^2(1) = 0.029$	$X^2(1) = 1.288$	$X^2(1) = 2.032$	$X^2(1) = 0.061$	$X^2(1) = 1.305$	$X^2(1) = 0.012$	$X^2(1) = 0.042$
	Level of sig.	$p = 0.86$	$p = 0.25$	$p = 0.15$	$p = 0.80$	$p = 0.25$	$p = 0.90$	$p = 0.83$
Dementia	Chi-square	$X^2(1) = 1.615$	$X^2(1) = 2.138$	$X^2(1) = 0.726$	$X^2(1) = 0.309$	$X^2(1) = 1.156$	$X^2(1) = 7.527$	$X^2(1) = 0.867$
	Level of sig.	$p = 0.20$	$p = 0.14$	$p = 0.39$	$p = 0.57$	$p = 0.28$	$p = 0.006$	$p = 0.35$
Medical diagnosis	Chi-square	$X^2(1) = 2.817$	$X^2(1) = 6.301$	$X^2(1) = 0.916$	$X^2(1) = 25.137$	$X^2(1) = 0.0006$	$X^2(1) = 0.928$	$X^2(1) = 0.846$
	Level of sig.	$p = 0.09$	$p = 0.01$	$p = 0.33$	$p = .0001$	$p = 0.98$	$p = 0.33$	$p = 0.35$

Appendix C: Regression Analysis of Maximum Likelihood Estimates

Interaction Factor

Predictor	Outcome	Standard error	Wald chi-square	Pr > Chi-square	Odds ratio	95% Wald confidence limits	
Intercept	6: Police	0.2336	143.1637	<.0001			
	5: Seclusion	0.1942	116.4920	<.0001			
	4: Restraint	0.1681	55.0034	<.0001			
	3: Manual hold	0.1560	0.5194	0.4711			
	2: Medication	0.1665	45.5476	<.0001			
Activity demand	1	0.1884	3.3974	0.06	1.415	0.978	2.048
Denial of request	1	0.3118	0.3935	0.53	0.822	0.446	1.515
Against medical advice	1	0.2903	0.4547	0.50	0.822	0.465	1.452
Limit setting	1	0.1756	0.1756	0.72	1.063	0.754	1.500

Diagnosis

Predictor	Outcome	Standard error	Wald chi-square	Pr > Chi-square	Odds ratio	95% Wald confidence limits	
Intercept	6: Police	0.2472	108.6779	<.0001			
	5: Seclusion	0.2110	78.5733	<.0001			
	4: Restraint	0.1888	29.2033	<.0001			
	3: Manual hold	0.1811	0.4156	0.51			
	2: Medication	0.1940	49.7881	<.0001			
Depression	1	0.2867	5.1550	0.02	0.522	0.297	0.915
Psychosis	1	0.6489	0.2592	0.61	1.391	0.390	4.964
Substance Abuse	1	0.6560	0.1388	0.70	0.783	0.217	2.833
Delirium	1	0.3302	1.1469	0.28	1.424	0.746	2.720
Bi-polar	1	0.3360	1.1401	0.28	0.699	0.362	1.350
TBI	1	0.3610	0.3221	0.57	0.587	0.093	3.701
PTSD	1	0.5946	1.1522	0.28	0.679	0.335	1.377
Dementia	1	0.5229	1.2929	0.25	1.812	0.650	5.051
Medical	1	0.1927	0.2812	0.59	0.903	0.619	1.317