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Featured Article

# The Effect of Simulation-Based Education on Correctional Health Teamwork and Communication

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## KEYWORDS

simulation-based  
education;  
corrections;  
communication;  
team work

## Abstract

**Background:** Simulation may be used to train providers on teamwork/communication skills. Evidence is limited concerning its use for training correctional nurses.

**Method:** This was a quasi-experimental, posttest-only study to assess the effects of teamwork training, using computer-based modules and simulation, upon communication errors/episodes of missed care for correctional nurses as measured by the MISSCARE survey.

**Results:** On the survey, most of the teamwork factors were not positive or negative. Most nurses participated positively.

**Conclusion:** Within the correctional setting, teamwork training with simulation may be used to enhance the nursing process. This setting offers unique challenges.

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Simulation is a tool used to train and evaluate health care practitioners (Green, Tariq, & Green, 2016). When simulation is used to replicate clinical situations, either for students or practicing providers, it is known as simulation-based education (SBE) (Al-Elq, 2010). The environment created for

SBE allows participants to learn via experience, which may impact or influence patient care (Norman, 2012).

Although SBE has been increasing in nursing academia, there has been less of a movement in the acute care practice setting, especially related to skill development (Aebersold & Tschannen, 2013). The literature is beginning to report outcomes of simulation in practicing nurses. In a systematic review of hospital-based simulation studies, Rutherford-

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Hemming and Alfes (2017) found mixed outcomes in practicing nurses with the use of simulation. Topics of the research were varied, ranging from competencies to communication. Rutherford-Hemming and Alfes (2017) concluded more studies are needed, particularly with validated instruments.

### Key Points

- It is important to study outcomes of simulation-based education with practicing nurses, including those working in correction facilities.
- Conducting simulation-based education training with practicing nurses in secured environments has many challenges.
- More simulation studies need to be performed with practicing nurses in specialty settings, such as correction facilities.

## Simulation and Correctional Health

Even less research could be located regarding the use of simulation to prepare nurses for specialty settings, for example, the correctional health setting (Shelton, Weiskopf, & Nicholson, 2010). One study, conducted with nursing students, found SBE strategies to be effective in preparing nurses for work with inmate populations (Díaz, Panosky, & Shelton, 2014). The authors concluded that SBE was helpful in training for differences in this specialty population, including difficulties that may be encountered. In

published studies, areas identified as needing improvement were related to communication and team processes that take place in a secured environment, typically behind barb wire fences and locked doors (Shelton et al., 2015). Measurement of correctional nurse outcomes from SBE is also limited. However, there appears to be a dearth of SBE literature for practicing nurses already employed in correctional settings (Shelton et al., 2010).

## Team Training, Simulation, and Communication

Nursing service in a prison or jail setting collaborates with the correctional professionals in a regimented organizational structure designed to establish and maintain a secure environment. Owing to this unique structure, TeamSTEPPS® (AHRQ, 2015) may be applicable for training teams in this environment. TeamSTEPPS® (AHRQ, 2015) is a well-established systematic approach to facilitating and improving communication and handoffs. The method used in this format assists in decreasing errors by clearly identifying leaders and the chain of command (Harvey, Wright, Taylor, Bath, & Collier, 2013).

Simulation is often incorporated into TeamSTEPPS® training (Harvey et al., 2013). It has been postulated that

SBE improves performance, especially for teams (Harvey et al., 2013). According to Peters et al. (2018), one hospital that incorporated SBE showed improvement in trauma teamwork, knowledge, and self-confidence, as well as patient outcomes such as decreased mortality. The SBE was not based on TeamSTEPPS®. The authors concluded that SBE can be used for other high-risk areas and to improve communication (Peters et al., 2018). Corrections may be an area that is considered to be high risk in which TeamSTEPPS® could be used.

TeamSTEPPS® has an SBE component focusing on communication and identification of team leaders (AHRQ, 2015). In a correctional setting, a clear process in which personal concerns related to health care and how they are communicated to the correctional staff needs to occur to decrease missed care related to communication. Communication in errors and gaps in health care delivery due to poor communication may occur (Kalisch & Lee, 2010). According to the AHRQ (2015), intense situations require environments that promote safety and positive patient outcomes. The correctional environment can be an intense workplace which can be alleviated by clearly identified team member roles and positive avenues to discuss concerns. An improvement in communication can lead to improved care as poor communication is often labeled a reason for missed nursing care (Kalisch, 2011).

Communication errors or miscommunication is a patient-safety concern (AHRQ, 2015) in all health care settings, including corrections. Missed care, associated with patient safety (AHRQ, 2015), is considered an error of omission (Jones, Hamilton, & Murray, 2015). When structural factors, such as adequate labor resources, teamwork, and communication, are missing, the work environment is set for care to be delayed or omitted (Kalisch, Xie, & Dabney, 2014).

## Purpose

In this study, the team implemented TeamSTEPPS® (AHRQ, 2015) training with an SBE component to improve communication skills of correctional health care workers and decrease episodes of missed care associated with errors in communication and gaps in health care delivery. The purpose of this study was to evaluate the effects of implementation of TeamSTEPPS® (AHRQ, 2015) training with an SBE component on team communication, teamwork, and skills in correctional facility health care workers. An additional goal was to add to the existing literature evidence on SBE in correctional settings with practicing health care providers.

## Background

### Correctional Nurse Competency Program<sup>©</sup>

A Correctional Nurse Competency Program<sup>©</sup> (CNC<sup>©</sup>) across one state (12 facilities) was established and

implemented (HRSA #D11HP22212-01-01) to train correctional health nurses and to evaluate competencies in this participant group (Díaz, Reagan, Shelton, & Barta, 2016; Shelton et al., 2015). The design of this high-fidelity simulation-based competency program was grounded in nurse educational assessment (Shelton et al., 2010) and included in presimulation preparation assignments such as computer-based modules and skill demonstrations (Tyerman, Luctkar-Flude, Graham, Coffey, & Olsen-Lynch, 2016). The needs assessment at the time of implementation of the original CNCP<sup>®</sup> did not include communication but rather high-frequency, high-risk situations. TeamSTEPPS<sup>®</sup> (AHRQ, 2015) was added to the program after a three-year review of the CNCP<sup>®</sup>.

### Presimulation Preparation

Presimulation preparation for the CNCP<sup>®</sup> was used as the design for the study. CNCP<sup>®</sup> activities included a review of nursing knowledge (such as physiology and nursing assessment) (Díaz et al., 2016; Shelton et al., 2015). High-risk topics included in the competency program are as follows: (a) hypoglycemia, (b) seizure precautions and care, (c) skin assessment, (d) chest pain, (e) asthma care, and (f) suicide management. Skills needed to be demonstrated in simulation were practiced. Practicing skills and review of knowledge were conducted before arrival to the simulation van (Table 1).

### Prebrief

The prebrief included the agreement to suspend disbelief and orientation to the simulation van. The time immediately preceding the unfolding scenario included reiterating the safety of the environment. Report to the nurse and pertinent information of the case were also provided.

### Simulation-Based Education

The designated simulation for the CNCP<sup>®</sup> was conducted on the simulation van. There was a standard of a

twenty-minute simulation and a forty-minute debrief. The structured debrief was carried out using a “Rapid Fire Huddle”, in which the team huddles to discuss the case, resembling what happens at the nurse’s station (Díaz, Pettigrew, Dileone, Dodge, & Shelton, 2017). This was followed by a facilitated debrief using the Debriefing for Meaningful Learning<sup>®</sup> (DML) method (Dreifuerst, 2015). A review of nursing policies was performed, as needed, in an effort to ensure consistency with facility policies and procedures.

### Theoretical Framework

The National League for Nursing (NLN) Jeffries Simulation Theory (Jeffries, 2016) was the underpinning theoretical framework of this research. The simulation experience incorporated “a trusting environment, collaboration, and hands-on experiences” (Jeffries, 2015, p. 293). The educational session was “participant-centered and interactive” (Jeffries, 2015, p. 293). To continue to create a physiologically safe environment for the learner, measures were taken to ensure that all SBEs were conducted by neutral, nonadministrative educators. The facilitator, participant, and educational practices of an environment directly affect the design characteristics of the simulation (Jeffries, 2015). Owing to the importance of the physical environment in a secured correctional facility, specific attention to realism in the simulation characteristics was given.

### Methods

#### Design

A posttest-only design was used to explore the effects of TeamSTEPPS<sup>®</sup> (AHRQ, 2015) training with an SBE component upon two outcomes: (a) communication errors and (b) episodes of missed care. All participants received the structured TeamSTEPPS (AHRQ, 2015) training and participated in the SBE. Randomization of participants was not possible due to specific security criteria enforced within the correctional facilities. Security measures require all scheduling to be approved by the facility in advance. In a correctional environment, safety of staff is imperative, and an account of the whereabouts of all staff is needed.

#### SBE Intervention Incorporating Team Training Concepts

Simulation-based training has been included in mandatory competency education in the correctional system within the CNCP<sup>®</sup> for a period of three years; however, TeamSTEPPS<sup>®</sup> (AHRQ, 2015) training and concepts were not

**Table 1** Simulation-Based Education With TeamSTEPPS<sup>®</sup>

| Modality                  | Content   |
|---------------------------|---|
| Presimulation preparation |   |
| Computer                  | Respiratory assessment, anatomy, principles of oxygenation and medications such as inhalers and corticosteroids |
| Skills                    | Respiratory treatments: nebulizer, inhalers, oxygen devices   |
| Simulation                |   |
| High-fidelity simulation  | Respiratory distress in an incarcerated cell and secured environment  |

included. An objective of the new education strategy was to provide participants an opportunity to practice communication skills among the health care team (Díaz, Pettigrew, Dileone, & Dodge, 2017). The planned education activity was for a “sick call” in the correctional facility, allowing nurses the time to assess a respiratory patient. Team-STEPPS® (AHRQ, 2015) training was built into the pre-simulation preparation modules before commencement of the SBE.

The SBE was conducted in a mobile simulation van used for the state-wide CNCP® (Shelton et al., 2015). The van was parked behind the prison or jail razor wire fences. The inside of the van was designed to look like a prison or jail cell (Figure 1), further increasing fidelity (Criterion 5; INACSL Standards Committee, 2016b). The van included bunks typically seen in the cell (Figure 2), a Gaumard® Hal (2018) manikin, and a defibrillator. The contents, such as the bunk, bedding color scheme typical of the incarcerated environment, and lack of in-cell medical supplies, increased realism which facilitated the implementation of the simulation.

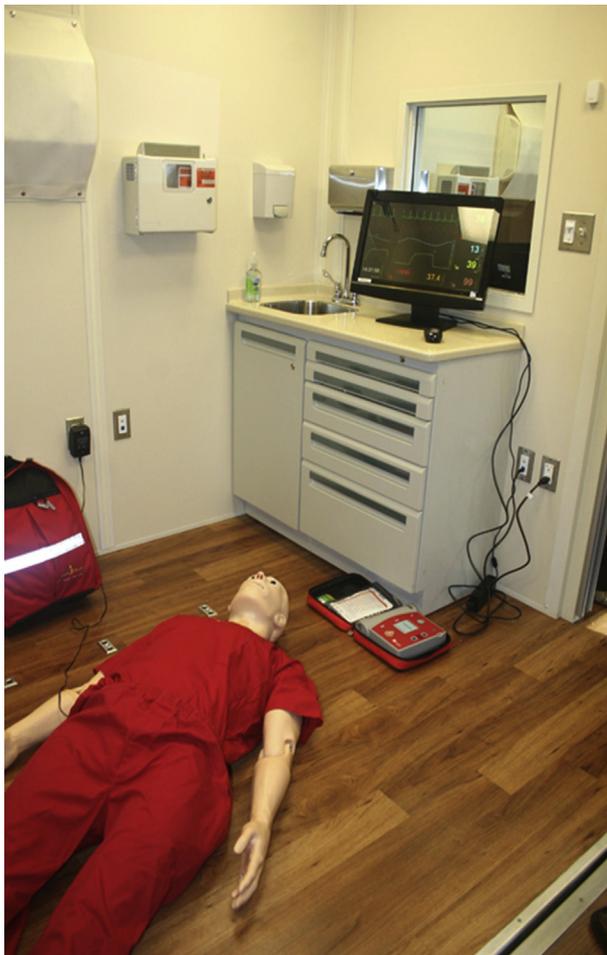


Figure 1 Module simulation van.

## Simulation Design

The clinical case scenario, for this study, was of an inmate having an asthmatic episode in his cell. The scenario was based on rapid deterioration of the patient’s health which required team member communication to get him to the medical unit (Díaz et al., 2017). The team needed to communicate with each other, health care providers in the medical unit, and the correction officers while maintaining a secure and safe environment.

The simulation design followed the eleven criteria and best practices presented in the International Nursing Association for Clinical Simulation and Learning (INACSL) Standards of Best Practice: Simulation<sup>SM</sup> Design (INACSL Standards Committee, 2016a, 2016b). An initial needs assessment (Criterion 1; INACSL Standards Committee, 2016b) was conducted when the CNCP® was initiated (Shelton et al., 2010). The identified specific, measurable, achievable, realistic and timed objectives (Criterion two; INACSL Standards Committee, 2016a, 2016b), which were mapped to the targeted competencies, were tied to specific policies and procedures (Correctional Nurse Competency Program® User Manual, n.d.) and were created by the correctional nurse educators trained as simulation facilitators. Defined as a formative SBE (Criterion 3; INACSL Standards Committee, 2016b), there were measures to facilitate learning for poor skill performance by nurses.

The scenario was based on a highly prevalent clinical situation within the correctional state system (Criterion 4; INACSL Standards Committee, 2016b), that is, an asthmatic inmate with an acute episode with primary objectives focused on teamwork and communication. The fidelity of the scenario (Criterion 5; INACSL Standards Committee, 2016b) was demonstrated through prior simulation activity pertaining to the medical aspects in the CNCP®; however, communication and teamwork were not previously addressed. A psychologically safe environment was maintained by ensuring no penalties were in place for poor performance (Wiseman, Haynes, & Hodge, 2013) and by limiting the use of supervisors as facilitators of the debrief. The use of supervisors was found to cause undue stress associated with the learning experience (Patel & Shelton, 2015). The TeamSTEPPS® (AHRQ, 2015) training with an SBE component (Criterion 7; INACSL Standards Committee, 2016b) used the CNCP® education strategy with a prebrief as described previously. All facilitators were trained in debriefing methods which followed the SBE (Criterion 8; INACSL Standards Committee, 2016b) using the Rapid Fire Huddle Technique (Díaz, Dileone, Dodge, & Shelton, 2017) and Debriefing for Meaningful Learning® (Dreifuerst, 2015). A protocol was written for the structured debrief after SBE, which was used by facilitators. Key points were also discussed related to effective communication with correctional officers and nurse practitioners and when to call the physician to maintain consistency between groups. Pre- and post-SBE evaluative data (Criterion 9; INACSL



**Figure 2** Picture of the simulation setup.

Standards Committee, 2016b) were collected and analyzed. The participant preparation related to simulation was the underpinning of the competency program; see the *prebrief* section (*Criterion 10*; INACSL Standards Committee, 2016b). A pilot test of the scenario was conducted with a small sample of practicing correctional nurses (*Criterion 11*; INACSL Standards Committee, 2016b).

## Sample

Three hundred and eleven nurses working in one state prison system were recruited to participate in the study. The final sample size was 191 licensed nurses. Data were not collected from the correctional officers who participated in the SBE. A total of five of the 12 identified correctional facilities within the state were included in the study due to timing of the state-wide simulation schedule and parameters of simulation research grant guidelines/timeframes.

## Instruments/Tools

### Demographic Survey

A short demographic survey was used to capture age, gender, years of experience, highest degree in nursing, and average amount of hours in shift worked.

Anecdotal data, such as observations and field notes, were collected by educators.

### MISSCARE Survey

The entire MISSCARE survey was administered to maintain the psychometric integrity of the instrument, but only

demographic information and information relating to team communication are reported. All instruments were given immediately after the SBE in the simulation van. Scores were converted to percentages of the nurses responding to the items presented.

The 74-item MISSCARE survey was used (Kalisch, Tschannen, Lee, & Friese, 2011) to assess perceived missed nursing care using three subscales: (a) teamwork (33 items), (b) missed nursing care (24 items), and (c) reasons for missed nursing care (17 items). The instrument was scored on a five-point Likert scale with items ranging from “rarely missed” to “often missed.” Validation of the MISSCARE survey with a large sample of nurses ( $n = 4,086$ ) yielded coefficient alpha values from 0.64 to 0.89 and a test-retest coefficient of 0.87 (Tschannen, Lee, & Friese, 2011).

## Protocol

Institutional review board (IRB) approval was obtained at the university, and a research review was conducted by the Department of Correction.

## Analyses

Paper-and-pencil surveys were administered. Participants were assigned identification numbers. Data were entered into an SPSS v. 22.0 (IBM Corp, Armonk, NY) database. Data were read using R v. 3.4.3. As the groups are not completely dependent or independent, inferential methods cannot be used. Only descriptive statistics are presented.

## Training

All correctional facilities had a nursing unit and services. A core group of nurses were educated on simulation by a Certified Healthcare Simulation Educator (SSIH, 2018). The nurse educator completed all training required by the IRB, managed the collection of data within each correctional facility, and provided supervision of the assigned SBE. Techniques of “Rapid Fire”/“Rapid Fire Huddle” (Díaz et al., 2017) and Debriefing for Meaningful Learning<sup>®</sup> (Dreifuerst, 2015) were reviewed. All educators had training which included having peer review and feedback with a Certified Healthcare Simulation Educator faculty.

Participants entered the simulation van in convenience cooperative learning groups of three to five based on the availability of the correctional facility staffing. Each simulation education session lasted about twenty minutes, followed by a forty-minute structured debrief. Data collection occurred directly after the debrief.

The simulation training was mandatory; however, participation in the instrument completion was voluntary. All facilities received the prebrief training (see [Prebrief](#)) before the simulation, approximately one month before the SBE (Table 1). This enabled the nurses to complete the modules during work hours within the specified time. Nurses who did not complete the modules were not allowed to participate in the SBE. The nurses who had not completed their required presimulation modules had to complete them at a different location as the education was mandatory; however, they could not participate in the study. After the study, the remaining facilities that were not included in the study were offered the same training based on simulation van schedule.

## Results

The final presented results are based solely on posttest responses. This was an effort to describe the posttest due to the inconsistency of the original design due to extrinsic factors that are discussed in limitations. Responses after the intervention are presented, but readers should keep in mind the results are not completely independent.

## Postintervention

### Demographics

The majority of respondents were women (80%) between the ages of 45 to 54 years (32%) and 35 to 44 years (31%). They held an associate degree or higher (82%); however, the highest nursing degree was licensed practical/vocational nurse (46%) and associate degree (23%). An average nurse typically worked 30 or more hours during the day shift (52%). Most respondents were experienced in their role for more than two years (87%), working in correctional health

and on an assigned unit for more than five years (49%) (additional information can be found in [Table 2](#)).

### Teamwork Subscale of the MISSCARE Survey

Team members felt that the charge nurse monitored situations on the unit rarely to a quarter of the time (37%) compared with most of the time (63%). Team members did not know when they needed assistance (52%). Participants felt that team members did not communicate for more than half the time (51%) and rarely ignore annoying behavior (63%). Nurses felt that other members of the team did not follow through most of the time (55%). Self-awareness related to team members being defensive and aware of their strengths and weaknesses was positively reported (68% and 47% of the time, respectively). Additional information can be found in [Table 3](#). Of the 33 possible items, in the Inpatient Nursing Teamwork Survey portion of the MISSCARE survey (Kalisch et al., 2011), about half (16) of the questions were judged to be substantial on the posttest. The question that seemed to have the most impact associated with it was “nurses do not work well together”, which (rarely) was reported the most.

## Discussion

There is a dearth of information regarding teamwork in correctional settings among health care providers. Teamwork was identified by the correctional health care nurses as strong before the simulation training in anecdotal notes. TeamSTEPPS<sup>®</sup> (AHRQ, 2015) training with an SBE component appears to have enforced and enhanced operating as a unit rather than focusing only on individual workloads. Team members avoided conflict, which can be good; however, unresolved issues can be detrimental to the team. Training using teamwork concepts, followed by an associated SBE, was a novel approach to capture the essence of teamwork in secured working environments, such as in a prison.

Many of the variables in the posttest might have sensitized the participants to some of the issues that were being explored based on the simulation modules before the SBE. This enforces the construct of simulation experiences reinforcing outcomes measures identified in the NLN [Jeffries Simulation Theory \(2016\)](#). An example is that of mutual respect. Participants might have gone away from the modules thinking about an issue they might not have considered and reported it in the posttest. This phenomenon is consistent with the NLN [Jeffries Simulation Theory \(Jeffries, 2016\)](#); educational activities before the simulation can impact the outcome measures. Outcome measures are affected by the entire SBE.

Participants appeared to have a negative response related to positive communication. Participants reporting rarely or

**Table 2** Relative Frequency (n) for Demographics From Missed Care Survey

| Variable                | Postintervention |
|-------------------------|------------------|
| Demographics            | Percent (Number) |
| Sample size             | 191              |
| Age                     |                  |
| <25                     | 0 (0)            |
| 25-34 years             | 21 (41)          |
| 35-44 years             | 31 (61)          |
| 45-54 years             | 32 (64)          |
| 55-64 years             | 13 (26)          |
| 65+ years               | 2 (3)            |
| Missing                 | 2 (3)            |
| Gender                  |                  |
| Female                  | 80 (155)         |
| Male                    | 20 (39)          |
| Missing                 | 2 (4)            |
| Highest education level |                  |
| High school             | 21 (40)          |
| Associate's             | 41 (78)          |
| Bachelor's              | 29 (55)          |
| Graduate                | 8 (16)           |
| Missing                 | 4 (8)            |
| Highest nursing degree  |                  |
| LPN                     | 46 (85)          |
| RN                      | 5 (10)           |
| ADN                     | 23 (43)          |
| BSN                     | 16 (29)          |
| Bachelor's              | 4 (7)            |
| MSN                     | 5 (10)           |
| MA/MS+                  | 1 (2)            |
| Missing                 | 6 (12)           |
| Job title               |                  |
| Staff nurse (RN)        | 54 (100)         |
| Staff nurse (LPN)       | 46 (85)          |
| Other                   | 0.5 (1)          |
| Missing                 | 6 (12)           |
| Hours worked per week   |                  |
| <30 hours               | 14 (25)          |
| 30 hours or more        | 152 (86)         |
| Missing                 | 21               |
| Work hours              |                  |
| Days                    | 52 (88)          |
| Evenings                | 22 (37)          |
| Nights                  | 19 (32)          |
| Rotating                | 8 (13)           |
| Missing                 | 14 (28)          |
| Experience in your role |                  |
| Less than 6 months      | 4 (7)            |
| 6 months to <2 years    | 9 (16)           |
| 2 years to <5 years     | 16 (28)          |
| 5 to <10 years          | 27 (47)          |
| >10 years               | 44 (78)          |
| Missing                 | 11 (22)          |
| Unit experience         |                  |
| Less than 6 months      | 11 (20)          |

*(continued on next column)***Table 2** (continued)

| Variable             | Postintervention |
|----------------------|------------------|
| Demographics         | Percent (Number) |
| 6 months to <2 years | 17 (29)          |
| 2 years to <5 years  | 23 (40)          |
| 5 to <10 years       | 26 (45)          |
| >10 years            | 23 (41)          |
| Missing              | 12 (23)          |

25% of the time related to behaviors of proper communication, and the need to follow through with patient care is believed to be due to the increased understanding of best practices related to workplace teamwork and communication. The critical element that emerged may have been due to increased or first-time exposure to team-based training (AHRQ, 2015).

A majority of the teamwork factors that are classified in the MISSCARE survey (Kalish et al., 2011) were neither positive nor negative. There were a few areas in which the negative traits of team members were identified, such as taking extra breaks and being focused on individual work. Simulation, therefore, may help present new information in a manner that effects changes by encouraging open communication related to teamwork within a correctional environment. Nurses were engaged in the training as evidenced by positive participation and discussion. Three questions directly affect patient outcomes and missed care: “team members are aware of strengths/weaknesses” (50% of the time), “plans made to deal with changes” (rarely), and “team members ignore annoying behavior” (rarely). The identified items could be enhanced with continued education and training on positive communication and teamwork strategies that can be incorporated into SBE.

## Limitations

Gaps in the literature make it difficult to assess proper power for an analysis or instrument development. Instrument development and modification is complicated based on the varying degrees and sentence structure within the prison system. For example, a jail may house an inmate for up to three years, whereas in prison, a person may live out a life sentence. This is important when one is looking at missed care and opportunities to improve health outcomes. There is extremely limited documentation of SBE for correctional nurses. Further complicating the issue is the distribution of instruments by qualified IRB-approved nurses. Nurses who were engaged in the study had proper training; however, the study could not be completed if the nurse was mandated to change practice location or site based on the needs of the prison system.

There were several limitations to the study design based on extrinsic factors. Originally, a pre–post test design was

**Table 3** Relative Frequency (n) for Results of the Inpatient Nursing Teamwork Survey Portion of the Combined Nursing Teamwork and Missed Care Survey, Postintervention for Connecticut Prison Nurses

| Variable                                   | Postintervention |
|--|------------------|
| Selected Inpatient Nursing Teamwork Survey | Percent (Number) |
| Team members understand responsibilities   |                  |
| Rarely                                     | 7 (12)           |
| 25% of the time                            | 20 (34)          |
| 50% of the time                            | 45 (77)          |
| 75% of the time                            | 29 (50)          |
| Always                                     |                  |
| Missing                                    | 12 (25)          |
| Charge nurses monitor                      |                  |
| Rarely                                     | 12 (20)          |
| 25% of the time                            | 25 (42)          |
| 50% of the time                            | 38 (63)          |
| 75% of the time                            | 25 (41)          |
| Always                                     | 0                |
| Missing                                    | 16 (32)          |
| Team members aware of assist needed        |                  |
| Rarely                                     | 20 (31)          |
| 25% of the time                            | 32 (51)          |
| 50% of the time                            | 33 (52)          |
| 75% of the time                            | 16 (25)          |
| Always                                     | 0                |
| Missing                                    | 20 (39)          |
| Team members communicate                   |                  |
| Rarely                                     | 20 (31)          |
| 25% of the time                            | 31 (49)          |
| 50% of the time                            | 33 (53)          |
| 75% of the time                            | 16 (26)          |
| Always                                     | 0                |
| Missing                                    | 20 (39)          |
| Team members ignore annoying behavior      |                  |
| Rarely                                     | 25 (33)          |
| 25% of the time                            | 38 (50)          |
| 50% of the time                            | 23 (30)          |
| 75% of the time                            | 14 (19)          |
| Always                                     | 1 (1)            |
| Missing                                    | 33 (65)          |
| Plans made to deal with changes            |                  |
| Rarely                                     | 20 (30)          |
| 25% of the time                            | 31 (45)          |
| 50% of the time                            | 31 (45)          |
| 75% of the time                            | 18 (27)          |
| Always                                     | 0                |
| Missing                                    | 26 (51)          |
| Team members aware of follow-through       |                  |
| Rarely                                     | 14 (23)          |
| 25% of the time                            | 31 (51)          |
| 50% of the time                            | 39 (65)          |
| 75% of the time                            | 16 (26)          |
| Always                                     | 0                |
| Missing                                    | 17 (33)          |

(continued on next column)

**Table 3 (continued)**

| Variable  | Postintervention |
|---|------------------|
| Selected Inpatient Nursing Teamwork Survey          | Percent (Number) |
| Charge nurses balance workload                      |                  |
| Rarely  | 12 (19)          |
| 25% of the time                                     | 33 (53)          |
| 50% of the time                                     | 33 (54)          |
| 75% of the time                                     | 22 (36)          |
| Always  | 0                |
| Missing   | 36               |
| Team thinks doing quality job                       |                  |
| Rarely  | 8 (13)           |
| 25% of the time                                     | 23 (38)          |
| 50% of the time                                     | 34 (57)          |
| 75% of the time                                     | 36 (60)          |
| Always  | 0                |
| Missing   | 15 (30)          |
| Shift change reports contains pertinent information |                  |
| Rarely  | 8 (14)           |
| 25% of the time                                     | 23 (39)          |
| 50% of the time                                     | 39 (66)          |
| 75% of the time                                     | 29 (49)          |
| Always  | 0                |
| Missing   | 15 (30)          |
| Team members spending extra break time              |                  |
| Rarely  | 28 (33)          |
| 25% of the time                                     | 35 (41)          |
| 50% of the time                                     | 21 (25)          |
| 75% of the time                                     | 17 (20)          |
| Always  | 0                |
| Missing   | 79               |
| Mutual respect                                      |                  |
| Rarely  | 10 (15)          |
| 25% of the time                                     | 25 (39)          |
| 50% of the time                                     | 43 (66)          |
| 75% of the time                                     | 22 (34)          |
| Always  | 0                |
| Missing   | 22 (44)          |
| Team members defensive                              |                  |
| Rarely  | 22 (27)          |
| 25% of the time                                     | 47 (58)          |
| 50% of the time                                     | 23 (28)          |
| 75% of the time                                     | 8 (10)           |
| Always  | 0                |
| Missing   | 38 (75)          |
| Team members aware of strengths and weaknesses      |                  |
| Rarely  | 9 (14)           |
| 25% of the time                                     | 38 (57)          |
| 50% of the time                                     | 36 (54)          |
| 75% of the time                                     | 18 (27)          |
| Always  | 0                |
| Missing   | 23 (46)          |
| On-coming shifts complain                           |                  |
| Rarely  | 18 (26)          |
| 25% of the time                                     | 31 (44)          |

(continued on next page)

**Table 3** (continued)

| Variable  | Postintervention<br>Percent<br>(Number) |
|---|---|
| Selected Inpatient Nursing<br>Teamwork Survey               |   |
| 50% of the time   | 32 (45)                                 |
| 75% of the time   | 20 (28)                                 |
| Always  | 0                                       |
| Missing   | 28 (55)                                 |
| Some staff members dominate                                 |   |
| Rarely  | 18 (25)                                 |
| 25% of the time   | 34 (47)                                 |
| 50% of the time   | 33 (46)                                 |
| 75% of the time   | 15 (21)                                 |
| Always  | 0                                       |
| Missing   | 30 (59)                                 |
| Conflict avoided  |   |
| Rarely  | 20 (28)                                 |
| 25% of the time   | 39 (54)                                 |
| 50% of the time   | 29 (40)                                 |
| 75% of the time   | 11 (15)                                 |
| Always  | 0                                       |
| Missing   | 31 (61)                                 |
| Certified nurse assistants/nurses do not work well together |   |
| Rarely  | 25 (16)                                 |
| 25% of the time   | 32 (20)                                 |
| 50% of the time   | 30 (19)                                 |
| 75% of the time   | 13 (8)                                  |
| Always  | 0                                       |
| Missing   | 135                                     |
| Charge nurses assist team members                           |   |
| Rarely  | 13 (20)                                 |
| 25% of the time   | 26 (39)                                 |
| 50% of the time   | 30 (44)                                 |
| 75% of the time   | 31 (46)                                 |
| Always  | 0                                       |
| Missing   | 25 (49)                                 |
| Team members notice others falling behind                   |   |
| Rarely  | 17 (24)                                 |
| 25% of the time   | 28 (41)                                 |
| 50% of the time   | 38 (55)                                 |
| 75% of the time   | 17 (25)                                 |
| Always  | 0                                       |
| Missing   | 53                                      |
| Team members work together                                  |   |
| Rarely  | 13 (20)                                 |
| 25% of the time   | 32 (48)                                 |
| 50% of the time   | 35 (52)                                 |
| 75% of the time   | 20 (29)                                 |
| Always  | 0                                       |
| Missing   | 25 (49)                                 |
| Feedback judgmental   |   |
| Rarely  | 28 (32)                                 |
| 25% of the time   | 38 (44)                                 |
| 50% of the time   | 28 (32)                                 |
| 75% of the time   | 7 (8)                                   |
| Always  | 0                                       |

(continued on next column)

**Table 3** (continued)

| Variable                                      | Postintervention<br>Percent<br>(Number) |
|---|---|
| Selected Inpatient Nursing<br>Teamwork Survey |   |
| Missing                                       | 41 (82)                                 |
| Team makes improvements                       |   |
| Rarely  | 18 (26)                                 |
| 25% of the time                               | 37 (52)                                 |
| 50% of the time                               | 29 (41)                                 |
| 75% of the time                               | 16 (22)                                 |
| Always  | 0                                       |
| Missing                                       | 29 (57)                                 |
| Team members share ideas                      |   |
| Rarely  | 12 (18)                                 |
| 25% of the time                               | 37 (56)                                 |
| 50% of the time                               | 36 (55)                                 |
| 75% of the time                               | 15 (22)                                 |
| Always  | 0                                       |
| Missing                                       | 24 (47)                                 |
| Team members clarify messages                 |   |
| Rarely  | 13 (21)                                 |
| 25% of the time                               | 39 (62)                                 |
| 50% of the time                               | 32 (51)                                 |
| 75% of the time                               | 15 (24)                                 |
| Always  | 0                                       |
| Missing                                       | 20 (40)                                 |
| Team members focused on own work              |   |
| Rarely  | 21 (31)                                 |
| 25% of the time                               | 37 (55)                                 |
| 50% of the time                               | 32 (48)                                 |
| 75% of the time                               | 10 (14)                                 |
| Always  | 0                                       |
| Missing                                       | 25 (50)                                 |
| Charge nurses give relevant directions        |   |
| Rarely  | 11 (18)                                 |
| 25% of the time                               | 34 (56)                                 |
| 50% of the time                               | 36 (60)                                 |
| 75% of the time                               | 20 (33)                                 |
| Always  | 0                                       |
| Missing                                       | 16 (31)                                 |
| Team members keep an eye out on others        |   |
| Rarely  | 16 (24)                                 |
| 25% of the time                               | 35 (54)                                 |
| 50% of the time                               | 35 (54)                                 |
| 75% of the time                               | 15 (23)                                 |
| Always  | 0                                       |
| Missing                                       | 22 (43)                                 |
| Team members understand roles                 |   |
| Rarely  | 8 (13)                                  |
| 25% of the time                               | 28 (47)                                 |
| 50% of the time                               | 42 (71)                                 |
| 75% of the time                               | 22 (37)                                 |
| Always  | 0                                       |
| Missing                                       | 15 (30)                                 |
| Team members respond to other patients        |   |
| Rarely  | 14 (22)                                 |

(continued on next page)

**Table 3** (continued)

| Variable                                   | Postintervention |
|--|------------------|
| Selected Inpatient Nursing Teamwork Survey | Percent (Number) |
| 25% of the time                            | 34 (54)          |
| 50% of the time                            | 37 (59)          |
| 75% of the time                            | 15 (24)          |
| Always                                     | 0                |
| Missing                                    | 20 (39)          |
| Team members value feedback                |                  |
| Rarely                                     | 18 (28)          |
| 25% of the time                            | 33 (51)          |
| 50% of the time                            | 32 (49)          |
| 75% of the time                            | 17 (27)          |
| Always                                     | 0                |
| Missing                                    | 22 (43)          |
| Responsibilities reallocated fairly        |                  |
| Rarely                                     | 12 (20)          |
| 25% of the time                            | 32 (51)          |
| 50% of the time                            | 34 (55)          |
| 75% of the time                            | 28 (35)          |
| Always                                     | 0                |
| Missing                                    | 19 (37)          |
| Team members trust each other              |                  |
| Rarely                                     | 13 (20)          |
| 25% of the time                            | 33 (51)          |
| 50% of the time                            | 35 (54)          |
| 75% of the time                            | 18 (28)          |
| Always                                     | 0                |
| Missing                                    | 23 (45)          |

planned. Approximately half ( $n = 91$ ) of the nurses completed a pretest compared with the number of nurses who completed the posttest ( $n = 198$ ). The state budget was put on hold, which directly impacted the project. The budget cuts created a downward negative impact within the correctional facilities. The situation created a void in the design as the series of pretest surveys were initiated; however, the study could not be completed.

The education department suffered a decrease in funding for education staff, as well as from staffing deficits. Staffing became an increasingly difficult issue to overcome on two distinct levels. First, due to a hiring freeze, proper staffing ratios were not met, minimizing the amount of time available and the amount of nursing resources available for educational purposes versus patient care. The simulation van required authorized drivers who had Department of Correction security clearance and a specialized license. The drivers and van repairs were not replaced during state budget cuts.

The simulation van, during the time of the study, also had multiple mechanical issues with the air conditioning unit. The mechanical issues were further complicated by the chewing of rodents on the electrical cords, adding additional costs and burden on the system and affecting

completion of the pretest and posttest instruments. Owing to the rodent issue, follow-up with participants from pretest to posttest was difficult, creating a disparity in collecting data (before and after pairing); more posttests were received than pretests. If a prison site was scheduled during that time when the van was not functioning due to the rodents, this site was skipped. Skipping sites created gaps in instrument completion. The van schedule is rigid due to the nature of a secured environment, thus the van had to move as per the preauthorized schedule, regardless of participants' inability to complete the SBE.

## Lessons Learned

There were a few issues that arose when attempting to collect data in a correctional facility. The major overarching issue in all facilities remained the access to the patient. The participants' schedule is rigid in nature which is caused by strict guidelines as to when nurses are allowed off the secured environment. It is further complicated by the fact that outside entities, such as a simulation van and research faculty, need prior authorization for specific dates.

The ability to facilitate and maintain consistent standards proved challenging in a study of this magnitude. Conducting a study, with the participation and help of educators that were vested in the environment, as an outside investigator created challenges such as the inability to adjust schedules. Multiple sites and locations were difficult at times to manage the movement of the simulation van and provide a location suitable for the storage of a large simulation van.

## Conclusions

Despite logistical limitations, this research contributes to an area where literature is lacking—SBE and team training for nurses in correctional facilities. This study demonstrated the feasibility of conducting a multisite study within a large correctional health environment. Although there were limitations and challenges, further investigation could be successful. We concluded that simulation can enhance the nursing process within a correctional environment in two areas, namely, communication and teamwork, which are embedded in the MISSCARE survey (Kalish et al., 2011). The survey could be modified, and a specific correctional health instrument could be developed. This could build upon the present study and provide a keen awareness of appropriate communication and techniques that should be used with all team members. Further research is needed to determine additional outcomes and the feasibility resulting from of correctional nurse training with simulation.

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