

Positive practice environments in critical care units in South Africa

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Background: The demanding nature of the critical care unit (CCU) presents a challenge to many nursing professionals and carries the risk of a high turnover rate. The critical care nurse (CCN) is responsible for caring for the most ill patients in hospitals, and the acute shortage of nurses contributes to the intensity and pressure of the environment. While the reasons for the nursing shortage are varied and complex; a key factor seems to be an unhealthy work environment. Little evidence exists of research conducted to investigate the practice environment of CCNs in South Africa (SA).

Purpose: This study aimed to construct a grounded theory for positive practice environments (PPEs) in private CCUs in SA.

Methods: Intensive interviews and a constant comparative approach to data collection and data analysis were used to explore the participants' ($n = 6$) perceptions of the elements of a PPE.

Findings: A theory depicting the core conceptual category of being in control and its relation to the other six categories was constructed from the data to explain a PPE for private CCUs in SA.

Conclusions: The study provides a robust overview of the elements of a PPE and contributes to the constructivist application of grounded theory.

Study limitations: The study was conducted in the private healthcare sector in SA, thus limiting the findings to this context.

Keywords: Constructivist Grounded Theory, Critical Care Unit, Positive Practice Environments, South Africa

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Introduction

South Africa (SA) has very little information on the need for and supply of workforce capacity in critical care units (CCUs) (Gillespie et al. 2006). According to the South African Nursing Council (SANC), SA had 3800 trained critical care nurses (CCN) listed on the registers in 2003 (Thom 2003) and has decreased to 2537 in 2005 (SANC 2007). A review of the workforce profile of CCNs in Western Cape hospitals reported a deficit of 72% of nurses in public sector hospitals and a deficit of 80% in the private hospital sector (Gillespie et al. 2006). The results of the study concluded that the current supply of CCNs in the Western Cape does not meet the demand of CCUs in the province. Nurses

are considered to be frontline staff in delivering safe and effective health care (Buchan & Calman 2004) and, consequently, the human resource crisis in health care is most felt at the nursing level.

The literature suggests several possible reasons for this acute shortage, but a key factor seems to involve the work environment. The International Council of Nurses (ICN) defines a positive practice environment (PPE) as an environment that supports excellence and has the power to attract and retain nurses (Bauman 2007). The need to create a PPE that will encourage nurses to work in CCUs was identified as an essential component in nurses' job satisfaction and turnover rates, and it was shown to play a positive role in patient outcomes (Ulrich et al. 2006) and maintain an adequate nursing workforce (Shirey 2006).

Critical care nursing in SA

SA is divided into nine geographical provinces and has an estimated population of 49.32 million (Statistics South Africa 2009). Health care constitutes two delivery systems, the large public sector and the smaller private sector. Approximately 80% of the population depend on the free healthcare services provided by the public sector [International Market Council of South Africa (IMCSA) 2008]. The private sector encompasses an estimated 259 hospitals delivering services to about 20% of middle- and high-income earners that can afford to contribute to a medical insurance (Hospital Association of South Africa 2009; IMCSA 2008). A national audit of critical care and high care dependency resources indicated that the majority of CCUs is located in the private sector (Bhagwanjee & Scribante 2007). According to Scribante & Bhagwanjee (2007), a total of 244 024 patients were admitted to CCUs in SA, during 2002, of whom 63% (154 044) were to private sector units and 37% (89 980) to public sector units.

In total, there are approximately 4168 critical care and high care beds that are staffed by 4584 professional nurses. SA distinguishes between two categories of nurses, namely professional nurses and sub-categories nurses (inclusive of enrolled nurses and enrolled nursing assistants) that are regulated by the SANC. Training of professional nurses typically occur at colleges and universities, and involve a 4-year pre-registration programme, which leads to registration in general, psychiatric and community health nursing and midwifery (Pretorius & Macera 2008). Critical care nursing education is provided on two levels, that is, a post-registration diploma offered by nursing colleges and universities and a postgraduate (master's) degree offered by universities.

The nurse-to-bed ratio in CCUs is reported to be 1.1 professional nurses per critical care/high care bed, with no difference in

this ratio between the public and private sectors. When compared with international literature (Williams & Clark 2001), suggesting that the ideal ratio is 6.7 nurses per critical care bed, provided that at least 50% of these nurses have a critical care qualification, it is evident that hospitals in SA fall short of these numbers. Although the private sector is not nearly as burdened by infrastructural deficiencies as their public sector counterparts, the challenges presented by a shortage of adequately trained and enough nurses in CCUs seem to contribute to the negative practice environment. Little evidence exists of research conducted to investigate the practice environment of the CCN. The unique environment of the South African healthcare delivery system, therefore, prompted an investigation into the practice environment of the CCN in SA.

Purpose and research questions

The purpose of the study was to construct a grounded theory for PPE in private CCUs in SA. The research questions are:

- What is a PPE according to the CCN?
- What will a grounded theory for PPE in private CCUs in SA entail?

Methodology

Constructivist grounded theory guided the collection and analysis of the data. According to Strauss & Corbin (1998), grounded theory is considered suitable when a relatively new area is to be discovered. In this way, social processes that are founded on human interaction can be explored with the goal of developing a theory. To that end, the researchers opted for a constructivist grounded theory in which the researchers and participants are recognized as the co-constructors of new knowledge (Charmaz 2006). In recognizing the inductive nature of analysis, the researchers were able to construct a theory that was grounded in the everyday experiences of the participants to understand the phenomenon.

Ethical considerations

Ethical approval was obtained from the Ethics Committees of the North-West University (NWU-0015-08-S1) and the two private hospital groups. In recognition of voluntary participation and the right to protection, informed consent was obtained from each of the participants. Participants provided their signed informed consent prior to the interviews.

Setting

This study was conducted in two of the three major private hospital groups collectively employing approximately 741 CCNs. The geographical distribution of private hospitals indicated that the highest number of beds and most medical insurance benefi-

ciaries were based in Gauteng province (Matsebula & Willie 2007). The types of health services offered and distribution of beds do not differ significantly between the hospital groups that participated in the study. Both groups can be classified as short-stay hospitals with an average patient stay of less than 30 days (Matsebula & Willie 2007). Of the 31 units that participated, 23 (74%) were located in hospital group A and eight (26%) in hospital group B. The majority of the units operated as multi-disciplinary units with an average size of close to 13 beds per unit. In this study, a multidisciplinary unit referred to CCUs that admit medical, surgical and trauma patients.

Participants and sampling

Participants were recruited by means of a written invitation and purposively selected based on the following inclusion criteria: nurses had to be registered with the SANC as trained CCNs or with experience in critical care nursing. As interviews were conducted in two of the 11 official languages of SA, codes derived from the Afrikaans interviews were translated into English. A co-coder verified the meanings of the translated codes to be a true reflection of the perspectives of the participants.

In all, six CCNs were interviewed. According to Charmaz (2006), logic supersedes sample size and grounded theory logic implies sampling until categories are saturated. In this study, although considered small, the sample size proved sufficient when the data analysis indicated the saturation of the categories. Following the analysis and coding of an initial interview, the researchers employed theoretical sampling to collect data relevant to the refinement and description of the emerging categories.

Data collection

Intensive interviews (Charmaz 2006) served as the principle strategy to explore the perceptions of the CCN regarding the elements of a PPE. In accordance with the subjectivist epistemological stance of the researchers, the direct involvement in every step of the data collection and analysis process not only ensured better analytical control of the data, but also the collection of data that was rich and full of detail. An interview guide with a set of initial open-ended questions, which was derived in part from the literature and the research question, was used to guide the exploration. The questions included in the schedule were intentionally open-ended to elicit thick and rich descriptions from the participants, accounting for the possibility of alternative themes emerging that had not been anticipated during the design of the study or the initial coding. This is known as theoretical sensitivity and theoretical sampling, both essential elements in the grounded theory process (Strauss & Corbin 1998).

Data analysis

The interview texts for this research study were analysed and coded following the standard protocol described by Strauss & Corbin (1998) and Charmaz (2006). This coding process consisted of three phases: open coding, axial coding and selective coding. A constant comparative method was used during each of the phases to integrate the ideas of the participants. Data analysis occurred concurrently with the other steps in the grounded theory process, implying that the initial open coding started as soon as the data from the first interview was collected. The names of the categories resulted from the researchers' interpretation of the data and the language of the participants. Following the development of the concepts and their subsequent grouping into categories, a preliminary review of literature that were considered relevant to the emerging categories was conducted. This review entailed the 'selective' sampling of the literature during which the concepts that earned their way into the emergent theory were further explored to establish previous support for the concept.

Rigour

Rigour was established by providing a participant with a summary of the findings to verify if the codes provided a true reflection of the participants' point of view. Prolonged engagement with the data and the emerging codes and categories as well as validation of the codes and categories by the co-coder contributed to the trustworthiness of the data. Having worked in private CCUs, the first author conducting the interviews consistently attempted to 'bracket' prior knowledge and experiences regarding the phenomenon under study. Any personal thoughts and feelings were documented in personal memos and were used as references during the analysis process. The memos assisted the researchers in identifying any previous knowledge that could hinder their ability to focus on the data at hand.

Findings

The core explanatory concept that emerged during the selective coding of the data was 'being in control'. Being in control appears and relates to the other six categories in this study and is, therefore, considered the core conceptual category (Strauss & Corbin 1998). To be in control, the following six categories that relate to the core category were identified: professional identity, environment built with nurses in mind, sound management, solid knowledge base, nursing human resources and critical care family. These seven categories form the elements of a PPE in private CCUs (refer to Supporting Information Fig. S1). The categories are briefly reviewed.

Being in control

To the CCN 'being in control' implied that she could anticipate having a greater sense of awareness and prevent any adverse events that add to the stress and intensity of her environment. Adverse events refer to any untoward patient event that is not a consequence of the patient's condition. When one of the six elements related to the core category is absent an adverse event typically occurs contributing to the stress of the environment. As one of the participants said,

... all experienced ... you don't have to check up on them, they work independent ... when you have this odd soul who you don't know the stress increases ten-fold ... not in control.' (I4, p4).

Professional identity

Professional identity emerged as a category from the realization that two 'lower order' categories, namely unknown passion and paid profession, could be subsumed as the properties of this more abstract category. CCNs working in the critical care environment for the right reasons had a positive attitude towards their practice environment and tended to look past the negative elements more easily.

My passion. It is what I want to do ... it is just; you know you just want to be there (I1, p4).

Firstly it is a calling ... if it is really in your heart you tend to look past the negative things (I3, p2).

Environment built with nurses in mind

An environment built with nurses in mind refers to the structural features and attributes of the unit. According to the participants, an ergonomically suited environment provided nurses with a working space that makes the execution of their tasks easier. With everything in the right place and having enough of everything, nurses are able to better concentrate on the task at hand. Participants' meaning was having a structural lay out that provided for the central and continuous monitoring of patients, facilitated nursing care and contributed to the sense that the nurse was in control of the situation. As one of the participants stated,

... full on bed views ... I want to see my patient, not just the monitor. In the ideal world, we'd have our own toilet ... you just never got to go and empty your bladder ... toilet so far away ... you were too scared to leave your patient (I3, p4).

Participants also reported that physicians working in closed CCUs need to have the relevant qualifications to care for critically ill patients. In units with an open approach, nurses often have to rely on the support provided by general practitioners not trained or having the necessary skill to care for patients. Nurses

reported on feeling exposed in emergency situations and that the lack of support left them feeling unsafe.

... if you have a single physician, it's easier ... you learn his ways ... know exactly what he wants. GP (general practitioners) who only kept up with GP knowledge ... without sounding pompous ... my ICU training probably put me in a better stead ... (I3, p2).

Sound management

Sound management referred to the integral role that management played in the creation of a PPE. The participants distinguished between two levels of management – management at the unit level and management at the hospital level. Accessibility to the unit manager was considered to be important, as well as flexibility in her schedule to meet with nursing staff. As one of the participants said,

... she comes in after 8, works until 4 ... night staff do not get to see her ... make an appointment ... makes herself a little bit more accessible ... a unit manager who backs you up all the way, who stands behind you (I3, p3).

Working closely with staff for 12 h of the day, participants felt that the shift leader must be aware of every nurse's capabilities on the shift to ensure the correct and fair assignment of patient cases. Participants concluded that the shift leader must be supernumerary so that she can provide support and on-the-spot training to nurses on the floor. When the shift leader is assigned a patient case, the pressure of the environment makes it impossible for her to support and teach staff. The most important aspects that emanated from the discussion regarding the contribution of management at hospital level in creating a PPE was as follows: management at hospital level must be familiar with the context of the critical care environment. Participants felt that if management at hospital level knew the context, they would better understand the challenges of nurses in these units. Recognizing and rewarding nurse efforts were also considered an important aspect in the role of management at hospital level. As one of the participants said,

... junior personnel ... like enrolled nurses ... have to expunge yourself to help those that are not on par with you (I4, p4).

Solid knowledge base

Having a solid knowledge base required appropriate training, standards of care, clinical knowledge and skills, and professional advancement. Appropriate training referred to knowledge and skills development that are context- and rank-specific in nature. Participants felt that training with other categories of nurses was

often a waste of time because the knowledge and skill was not relevant to the critical care context.

... like our skills (are) not rank specific ... will be there with ENAs and ENs (sub-categories of nurses) working in the ICU ... be learning about how to take a blood pressure ... waste of my time ... I want to know what I can do to reduce my arterial pressures' (I3, p8).

Standards of care represent the product of a solid knowledge base and depend on nurses. Because nurses have a responsibility 'to do things right', it is important that they have the appropriate knowledge of the evidence related to best practices. Professional advancement was very important to the participants as it related to the ambition and drive, that is, according to them, part of who they are and why they are there. The participants recognized that knowledge is very dynamic in the context of the critical care environment and that it must be updated regularly. Finally, the participants concluded that nurses without the necessary knowledge and skills are dangerous and increase the pressure and workload of the remaining staff.

Nursing human resources

Nursing human resources refers to having the right numbers, which is indicative of the nurse : patient ratios in the unit, and knowing your partner – knowing that he/she is capable to care for the patient assigned to him/her. According to the participants, having the right number of nurses or the correct ratio does not mean that you have the right nurses for the job.

Very often, nurses working in CCUs have to rely on agency staff (or so-called session workers) and staff from other parts of the hospitals (very often lower-ranked nurses such as enrolled nurses) to care for patients. Not knowing these nurses add to the stress of the critical care environment. As one of the participants said,

... if every night you work with a different person, it's incredibly stressful ... we're short staffed ... get people from agencies ... lack skill to pick up complications ... cannot trust ... you immediately feel your stress goes up ... I do not know this girl, wonder what she is like ... not in control' (I4, p4).

Critical care family

Being 'part of the critical care family' referred to reciprocal relationships of mutual trust and respect between CCNs working in CCUs, physicians and members of the multidisciplinary team, such as pharmacists and physiotherapists. The relationship between the CCN and the physician was considered extremely important. The presence of an open communication channel, in

other words, being comfortable with phoning the doctor at any time was vital to for participants to execute their nursing duties. Physicians that respect nurses' decisions and trust their judgement were vital to a PPE.

Finally, members of the multidisciplinary team are also considered a part of the critical care family because even if the relationship is to a greater or lesser extent, there is still a relationship. Participants agreed that CCNs rely on a variety of members of the multidisciplinary team to care for the patient in the CCUs. As such, you need a good relationship. Because of the context in which the CCN practice, they are treated as priority. As one of the participants said,

The team in critical care is quite big ... we have a good relationship with them ... we are treated as priority ... there is a relationship ... it is all part of the team (I2, p6).

Discussion

When looking at the elements of a PPE described by SA CCNs, it is evident that these elements seem to be in line with several indicators described in other studies. According to Rischbieth (2006), strategies for adverse event prevention, detection, investigation, documentation and review are paramount. The Canadian Health Services Research Foundation (CHSRF; 2001) also stated that a safe and ergonomically sound environment with the necessary supplies, services and technology to improve efficacy and work life development, reduces stress in nurses. The Registered Nurses Association of Ontario (RNAO 2006) agrees that disequilibrium related to nurse numbers, workload and competencies contribute to a stressful and unpredictable environment often leading to negative outcomes for patients and nurses.

When considering the professional identity of nurses, participants in this study agreed that nurses driven by money have little concern for the CCU. According to a report on PPE by the ICN (2007) there are two considerations that merge when we examine the PPE, namely (1) the nurses' professional identity and (2) the characteristics of the environment. Professional identity according to Fagermoen (1997) refers to 'the nurses' conception of what it means to be and act as a nurse, that is, it represents her/his philosophy of nursing'. Fagermoen (1997) thereby corroborates the view of participants in this study that your reasons for working in the critical care environment influenced your perception of the environment, contributing to your discernment between a positive and a negative practice environment.

Schmalenberg & Kramer's (2008) report on CCUs with the healthiest practice environments, echoes many of the elements described by participants in this study. According to the authors, structural elements and attributes of CCUs contribute to a PPE. These attributes include a physical layout that allows constant

observation and immediate access to patients, a high level of rapidly developing technology, competent and experienced staff, and longevity of contact between nurses and physicians. In a position statement on nurse-to-patient staffing ratios in CCUs, Pilcher & Odell (2000) reported that despite sophisticated monitoring equipment, the majority of incidents in CCUs were detected by direct observation as opposed to monitor detection. CCUs known as closed units with single physicians in charge were reported to contribute to an environment built with nurses in mind.

Previous studies [American Association of Critical Care Nurse (AACN) 2005; CHSRF 2001; RNAO 2006] have shown that management and leadership is imperative to the creation of a PPE. The importance of recognizing the role of nurse managers in mentoring, supporting and guiding staff closely resonate with the findings of this study under the category 'sound management'. According to the American Nurses Credentialing Center (2007), one of the attributes of the so-called 'magnet' hospitals, which exemplify excellence in the professional nursing environment, involves nursing leaders that are visible, accessible and committed to communicating effectively with staff.

In SA, CCNs often have to work with agency nurses and nurses from the sub-categories that often lack the knowledge and skill to care for critically ill patients. According to Rischbieth (2006) nursing staff not previously known to the unit and with skills and scope of practice difficult to assess, aggravates the risk to adverse events, adding to the pressure of the environment. Similarly the AACN (2005) reported that appropriate staffing is considered one of the most important elements in patient safety and the well-being of the nurse. The influx and regular use of agency staff often leaves CCUs confronted with a disruption of nursing teams, decreased continuity of patient care and even dissuasion from the nursing profession altogether (CHSRF 2001).

Finally, Aiken et al. (1998) reported on evidence for better patient outcomes when there is good collaboration between nurses and physicians. In this study, nurses reported on the importance of the nurse-physician relationship in creating a PPE. Intimidating behaviour and deficient interpersonal relationships lead to mistrust, stress and dissatisfaction among nurses (AACN 2005). A breakdown in team communication is considered a top contributor of adverse events in patient care. The work environment of the CCN requires close engagement and teamwork with other members of the multidisciplinary team in an ongoing manner to ensure the provision of optimal patient care.

Conclusions

A grounded theory for PPE in CCUs offers a unique contribution to knowledge by providing an explication of what the elements of

a PPE might entail from the perspective of CCNs working in the private hospital sector in SA. The study provides the private hospital sector with an understanding of the CCNs' definition for a PPE by making the elements of such an environment explicit. Some policy and practice implications of this study include

- 1 There is a need to develop a programme for PPE in CCUs in SA in both the public and private hospital sector.
- 2 The management of the private sector should be informed of the elements of a PPE to incorporate the elements in CCNs' practice environment.
- 3 Networks between international partners in the public and private hospital sectors should be established to encourage collaboration on projects related to the practice environment of the CCN.
- 4 The identification of a champion for PPE in hospitals and training is needed, and support for the champion regarding the implementation of a programme for a PPE.

For research purposes, this study can provide the initial structure for the operationalization of a PPE assessment instrument for CCUs in SA. The study can also prompt interest in policy research about the impact of a PPE on organizational and patient outcomes in CCUs in SA.

Limitations

The study was conducted in a particular geographical area of SA within the private hospital sector. The results, therefore, are limited to the private healthcare context in the Gauteng province.

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Author contributions

RP: conceptualization of the study, data collection/analysis, the interpretation of the findings and drafting the manuscript; HK: conceptualization of the study, critical revision of the intellectual content, supervision and drafting the manuscript.

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Supporting Information

Additional Supporting Information may be found in the online version of this article:

Table S1 Characteristics of participants

Fig. S1 The elements of a positive practice environment in critical care units.

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