

Experiences of professional nurses caring for patients with open abdomen in an intensive care unit in Gauteng

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Authors' contribution

Prof Nel is my co-supervisor and Mrs Kearns is my supervisor in this research study.

Summary

There are 4961 words used in this article excluding references and abstract,18 pages and two tables used. Abstract has 199 words. Certificate from language editor and letters from ethics committee supplied.

KEYWORDS:Intra-abdominal pressure, intra-abdominal hypertension (IAH), abdominal compartment syndrome (ACS), vacuum-assisted closure (VAC), fistula.

ABSTRACT

The researcher has observed that nurses prefer not to nurse patients with open abdomen as they fear that the abdominal contents will protrude. The purpose of the study was to explore and describe the experiences of professional nurses taking care of patients with open abdomen in intensive care in an academic hospital in Gauteng and to describe the recommendations for assisting professional nurses in taking care of patients with open abdomen. The research design used was a qualitative, exploratory, descriptive and contextual design. Focus group interviews were conducted and each comprised of six participants. The research question which was addressed was: What are the experiences of the professional nurses caring for patients with open abdomen in intensive care unit? What recommendations can be made for assisting professional nurses in taking care of patients with open abdomen in intensive care unit?

Data were analysed using Tesch's method. Three themes also emerged: difficulty in nursing care, complications suffered by patients and poor hospital administration. Recommendations for assisting professional nurses in taking care of patients with open abdomen were then described from the findings of four focus group interviews. Ethical principles and measures of trustworthiness were adhered to throughout the research study.

THE INTRODUCTION/BACKGROUND AND RATIONALE

Open abdomen is a surgical procedure done in theatre and is also known as laparotomy. The peritoneal cavity in open abdomen is deliberately left open anteriorly (Leppäniemi, 2010:1). The abdominal contents of open abdomen are exposed and are only closed with a transparent dressing such as opsite dressing. Worhunsky, Magee and Spain (2013:33) stated that open abdominal surgery was first done way back by Ogilvie in 1940 and during that time he used “canvas light” or cotton cloth sterilised in Vaseline to cover the abdomen temporarily.

Since 1940, open abdominal surgery has become a daily procedure used mostly in ICUs to manage critical and unstable trauma patients with abdominal injuries. The benefits of doing open abdomen are the following: facilitating accessibility when doing repeated relook laparotomies, and facilitating healing and prevention of abdominal compartment syndrome (Worhunsky *et al.*, 2013:33). Navsaria, Nicol, Hudson, Cockhill and Smith (2013:4) agree with Worhunsky *et al.*, (2013:33) by saying that open abdomen assists in decreasing mortality rate and preventing abdominal compartment syndrome. Open abdomen also assists in early identification of abdominal complications. Open abdominal surgery is done mostly in trauma patients who suffer from penetrating injuries, blunt injuries, or a combination of blunt injuries and penetrating injuries. Penetrating injuries occur due to gunshots wounds or abdominal stab wounds. Blunt abdominal injuries are usually due to assault or caused by pedestrian vehicle accidents, motor vehicle accidents and fall from height (Kman, Knepel, Hays & Menaker, 2012:1-4).

Stuijt (2009:1) stated that trauma units were like war zones. The Groote Schuur Hospital admitted close to 11,000 trauma patients in 2008, while South African academic hospitals admitted 127,000 bullet wounds in 2008. Trauma patients are treated as emergencies and exploratory laparotomies are usually performed to exclude internal bleeding in the abdomen. If the bullet wound is in the abdomen, a damage control laparotomy is done which results in the abdomen being left open to prevent abdominal hypertension, abdominal compartment syndrome and abdominal infection (Demetriades, 2012:17).

Severe abdominal sepsis, abdominal dehiscence, paralytic ileus, fistulas and acute respiratory failure are complications of open abdomen, irrespective of its life-saving benefits. Acidosis, hypotension, hypothermia, coagulopathy and oliguria occur in these patients (Cheatman *et al.*, 2007:954). These critically ill patients mostly lose proteins and fluids. Patients with open abdomen stay long in hospital and in ICU and this increases their hospital costs. Patients with

open abdomen are at risk of developing aspiration complications, pneumonia, pressure ulcers, thromboembolism and abdominal abscess (Cheatman *et al.*, 2007:951-962).

PROBLEM STATEMENT

Patients with an open abdominal wound make the nursing care difficult because they are usually hemodynamically unstable. Their nursing care differs from other hemodynamically unstable patients in the sense that nurses have to constantly observe the open abdominal wound for bleeding, abdominal distention and abdominal compartment syndrome.

The researcher has observed that nurses in a specific intensive care unit prefer not to nurse patients with open abdomen. Nurses become stressed and some refuse openly to nurse these patients and would rather be transferred to other units where there are no patients with open abdomen. The questions therefore arising are: What are the experiences of professional nurses caring for patients with open abdomen in intensive care units? What recommendations can be made for assisting professional nurses in taking care of patients with open abdomen in intensive care units?

RESEARCH PURPOSE

The purpose of the study was to explore and describe the experiences of professional nurses caring for patients with open abdomen and to describe the recommendations for assisting professional nurses in taking care of patients with open abdomen in an intensive care unit in an academic hospital in Gauteng.

RESEARCH OBJECTIVES

The objectives of this study are as follows:

To explore and describe the experiences of professional nurses who are caring for patients with open abdomen in intensive care unit.

To describe the recommendations for assisting nurses in caring for patients with open abdomen in an intensive care unit in an academic hospital in Gauteng.

DEFINITION OF TERMS

Professional nurses

A person who is registered as a nurse or midwife as defined in Nursing Act 33 of 2005. In this study professional nurse refers to registered nurses who have managed patients with open abdomen in ICU.

Open abdomen

A surgical treatment method in which the peritoneal cavity is opened anteriorly and deliberately left open. It is also known as laparotomy (Leppäniemi, 2010:1). Open abdomen is used for diagnostic purposes or as a surgical treatment (Peters, 2007:333). For the purpose of this study open abdomen refers to a surgical procedure done during laparotomy whereby the abdomen is left open post-operatively to prevent abdominal compartment syndrome.

Caring

Jesse and Alligood (2014:96) described caring as the ethical and moral ideal of nursing with interpersonal and humanistic qualities. It is a complex concept involving development range of knowledge, skills, technical proficiency and interpersonal skills. Caring in nursing is care that ensures comfort and support to the patients being cared for by nursing professionals. A caring nurse should be able to cultivate a humane, understanding and compassionate approach in providing care and should understand the importance of humanity of the healing service (Searle, Human & Mogotlane, 2009:15). For the purpose of this study caring refers to tasks done by nurses regarding basic nursing care, hygiene, nutrition, fluid and electrolyte balance, ventilation and abdominal wound dressings, suction dressings and measuring intra-abdominal pressure in patients with open abdomen.

RESEARCH DESIGN AND RESEARCH METHODOLOGY

Research design

The researcher used a qualitative, exploratory, descriptive and contextual design. The study explored and describes the experiences of critical care nurses who are caring for patients with

open abdomen in an intensive care unit in Gauteng. The design was contextual as it was done in a specific context whereby critical care nurses in intensive care units were interviewed in an academic hospital in Gauteng.

Research methodology

Research methods were described under the following: population, sampling, data collection, data analysis and data interpretation and trustworthiness.

Population

The hospital under study is situated in Gauteng and has five intensive care units. The population of this study were all professional nurses in an academic hospital in Gauteng. The target population was professional nurses currently working in a specific trauma intensive care unit. The target population will be from the trauma intensive care unit which comprises 45 nurses. The reason for choosing professional nurses as the target population was because professional nurses in that unit were more experienced and knowledgeable in caring for patients with open abdomen. Only one intensive care unit was chosen as patients are differently cared for in other intensive care units and this will affect the results of the study.

Sampling

Sampling refers to the process used to select a portion of the population for the study. The researcher used purposive sampling in this study. Purposive sampling means that participants are chosen due to the fact that their defining characteristics are necessary to make them the holders of the data for the study (Maree *et al.*, 2012:79). The sample in this study comprises professional nurses working in a trauma intensive care unit in an academic hospital. The inclusion criteria, also known as eligibility criteria, are professional nurses who were working in an intensive care unit in an academic hospital and who have cared for patients with open abdomen for more than a year.

Data collection

Focus group interviews were chosen for this study as the researcher wanted discussion between participants as she was of the opinion of obtaining rich data.

In this study, the researcher conducted focus group interviews after the participants had signed consent forms. The participants were also told that the interviews will be audio-recorded. Consent to record the interviews were obtained from participants before interviews were conducted. Each focus group had at least six participants.

The main question which explored was: **“Tell me about your experiences in providing nursing care to patients with open abdomen”**. The second question which explored was: **“What are the recommendations that will assist professional nurses in caring for patients with open abdomen?”** Interviews were conducted by the researcher while nurses were on duty and when the intensive care unit was quiet to avoid disturbances and to avoid nurses being called during interviews to care for patients. Interviews were performed during day and night duty. Three focus group interviews were done during day shift and one focus group interview was done during night shift. Nurses were also reluctant to come for interviews during their off days.

Interviews took between 45 and 90 minutes and were held in a boardroom in the academic hospital where the study was conducted. The room was quiet and free from noise and distraction, comfortable, safe, accessible and convenient, with good lighting. The participants were placed in a circle to encourage interaction amongst one another and encourage eye contact. The participants were given numbers to pin on to maintain anonymity and confidentiality. The participants, together with the interviewer, started by setting ground rules for the group to facilitate respect and communication.

Interviewing skills such as probing, clarifying and summarising were used. Focus group sessions were held until saturation of data was reached. The researcher wrote field notes during the interviews. Refreshments were served before the interviews started and after they had finished.

Data analysis

In this study the researcher performed data concurrently with data collection. The researcher, together with the independent coder, analysed data independently and thereafter had a consensus meeting to discuss their results.

MEASURES OF TRUSTWORTHINESS

The trustworthiness of this study was ensured by using strategies of credibility, transferability, dependability, confirmability and authenticity from Lincoln and Guba (Polit & Beck, 2008:539; Shenton, 2004:63-75). **Credibility** was ensured by engaging patients for a long time. The interviews lasted 45 to 90 minutes in order for the researcher to build trust, rapport and understanding with participants. Triangulation was used as data were collected using focus group interviews, audio-recording and field notes. The researcher used **transferability** by choosing the sample of nurses purposefully and using direct quotations from participants. **Dependability** was ensured by making sure that the audio-recordings were transcribed verbatim and interviews were conducted until data saturation. **Confirmability** was ensured by ensuring the study represented the information provided by the participants and the findings of this research were derived from the data collected and not the researcher's imagination. **Authenticity** was ensured by the researcher making sure that all the voices of the participants were honoured.

ETHICAL CONSIDERATIONS

Approval for doing this research was given by the Academics Ethics Committee AEC01-91-2014 (Annexure A) and Higher Degrees Committee HDC-01-77-2014 (Annexure B) at the University of Johannesburg, and approval was also granted by the CEO of the hospital (Annexure D) and head of trauma department (Annexure E). The researcher obtained approval from the Gauteng Department of Health Protocol number GP2015RP27148 (Annexure C). Ethical considerations were discussed using the four principles of the Belmont Report: the principle of respect for autonomy, the principle of non-maleficence, the principle of beneficence and the principle of justice (Dhai & McQuoid-Mason, 2011:14). Confidentiality, right to privacy and informed consent were described.

RESULTS

Data were collected using focus group interviews. Data were analysed using Tesch's eight steps of coding (in Creswell, 2014:198). Data of focus group transcriptions were analysed by an independent coder and consensus was reached regarding central theme, themes and sub-themes. Themes and sub-themes were later confirmed by the researcher's supervisors. Themes and sub-themes emerged as stated in table 1: below.

THEME 1: DIFFICULTIES IN NURSING CARE

The participants verbalised that they experienced difficulties in taking care of patients with open abdomen. The challenges that professional nurses face regarding difficulties in nursing care will be discussed under the following subthemes: psychological problems, wound care, pain control, ventilation and difficulty in absorbing feeds.

Subtheme: psychological problems

The participants stated that nursing staff experienced psychological problems as they were frustrated and also acquired infections when nursing patients with open abdomen.

This is evidenced by the following quotations:

“Nursing patients with open abdomen is very tricky and challenging. Me basically is more on the personal side. I was shocked at first. It was for the first time to see the real gut outside and the tubes lying around outside. It is really scary.”

“Nurses become psychologically affected, like now we must start circulating the patient. If we are seven then it must be one, two so that everybody nurses the patient.”

Petro and Pedrao (2009:1-2) further state that nursing is a stressful occupation because nurses work with people who are suffering and who need abundant attention, compassion and sympathy. Nurses become irritable, depressed and disappointed when they deal with this type of situation.

Subtheme: wound care

The dressings of patients with open abdomen are not well secured. When dressings leak, the patient's skin is eroded, and this leads to the patient developing bedsores. Participants experience challenges with suction dressing/ Vac dressing. The suction dressing is not regulated or not working properly. Suction dressing is either sucking too much or sucking too little.

This is evidenced by the following direct quotations:

“If dressings are not done properly they leak. The fluid causes the skin to be eroded. They can have pressure sores. Wound doesn't heal properly.”

“You find that dressings are leaking and therefore patients are forever wet. Suction is a problem. Power should be regulated but working in a government institution then we have to use what we have. Suction is not regulated and sometimes it is sucking a lot (FRUSTRATED AND ANGRY, PARTICIPANT IS FROWNING)”.

According to Schechter, Ivatury, Rotondo and Hirshberg (2006:391) the major problem in wound care is leakage of large volumes of peritoneal fluid from the abdomen onto the patient’s bed.

According to Bogeberg (2006:22), there is always a high probability that the leakage occur due to failure of an adhesive. The type of adhesive used, how physically active the wearer is determines the risk of leakage. Leakage develop on the skin which surround the stoma. If the stoma is situated on a skin crease, at skin level or below skin level, or if the patient has gained a great deal of weight after the operation, a fissure is created around the stoma. The adhesive can be very difficult to stick. As a result, the skin is exposed to faeces leaking beneath the baseplate.

Subtheme: pain control

Participants are of the opinion that pain is not well controlled in patients with open abdomen. Patients become restless and hypertensive. Patients also experience pain when dressings are removed. The dressings adhere to the skin, causing unbearable pain. Doctors stop the sedations quickly while the patients still need the analgesia most. Mostly patients with open abdomen are mechanically ventilated so it is difficult for them to verbalise that they are having pain. Patients can end up pulling their endotracheal tubes, central lines, arterial lines and their wound dressings due to pain.

Participants stated the following:

“Control of pain. It is the most important thing (EMPHASIS, NODDING HER HEAD). If you don’t control pain then you delay wound healing. We have seen in some instances where they have stopped all analgesia and sedation. Patients take long time to heal. The more you sedate, you minimise patients to cough and minimise complications. Pain must be well controlled - more especially in the first few days.”

“They stop too sudden to give something for pain. This tramal thing that has been introduced is not effective. Patients should be fully sedated for three days. There you find that there is no

morphine and dormicum on the second day. Patients with open abdomen have severe pain. Pain, Pain delays everything (IRRITATED, VOICE UP AND SHAKING)."

Layzell (2005:34-36) states that many patients still experience unnecessary pain despite the developments in knowledge of pain control. A significant number of patients suffer from moderate to severe pain after surgery irrespective of the pain teams which have been introduced and the new techniques used for controlling pain. The occurrence of chronic pain post operatively is due to pain that is not well managed after surgery.

Subtheme: ventilation

The participants stated that ventilating patients with open abdomen is problematic as there are no protocols guiding them on how to ventilate these patients. These patients have distended abdomen which increases the abdominal pressure and intra-thoracic pressure. This results in abnormal pumping of the lungs and compromises the patient's ventilation.

This is evidenced by the following quotations from the participants:

"Ventilation becomes a big problem because the open abdomen patients are predisposed to have abdominal pressure. They end up having problems with ventilation due to increased pressure in the abdomen. Hence the cardiothoracic cavity becomes decreased to the lungs and heart to pump due to circulatory (MUMBLING, SAYING MMM) their normal work, their ordinary circulatory...."

"Patients become restless, anxious, hypertensive. We get real problems which affect ventilation."

Lee (2012:5) states that the diaphragm is pushed upwards and impinges on the thoracic cavity when there is intestinal gas, fluid and oedematous organs distending the abdomen. The intra-abdominal pressure interferes with the patients' respiration and ventilation because more than 50% is dispersed across the diaphragm. Pulmonary dysfunction is the only earliest sign of abdominal compartment syndrome. The lungs cannot fully expand and respiratory excursion is limited causing reduction in inhaled tidal volume, resulting in hypoxia.

Subtheme: difficulty in absorbing feeds

The participants verbalised that feeding patients with open abdomen is a problem. Patients have huge aspirates, tend to vomit and don't tolerate enteral feeds. They end up being given total parental nutrition or not being fed and put on free drainage.

This is evidenced by the following quotations from the participants:

“The feeding part of this patient is a problem. They end up with lots of aspirates and vomiting due to increased abdomen. The stomach becomes smaller and can't contain all the stuff that you are giving. Patients not absorbing end up being given TPN or are put on continuous drain.”

“After they have done laparotomy. They are not given enough feeds. They cannot tolerate feeds because of the management they did on the open abdomen. We end up giving TPN. When the patients are on TPN we need to monitor sugar levels because when sugar levels goes high it lead to delayed healing.”

Tempest (2011:30) states that it has been reported that more than 60% of patients in ICU do not tolerate their gastric feeds. Signs and symptoms that indicate intolerance to enteral feeding include vomiting, nausea, abdominal pain and distention, constipation and diarrhoea. Research has shown that prolonged hospital and ICU stay and not providing enough nutrition are caused by gastrointestinal complications and inability to tolerate feeds.

Subtheme: lack of knowledge and skills

The participants verbalised that nurses and doctors lack knowledge and skills on how to take care of patients with open abdomen and to how to perform intra-abdominal pressure monitoring.

This is evidenced by the following quotations:

“It is said to be done by doctors but funny enough the doctors don't know how to do it. We don't have equipment to do it and we end up using the CVP. We don't have proper abdominal pressure monitoring skill and they take patients unnecessarily to theatre due to lack of equipment.”

“In our unit intra-abdominal pressure is supposed to be done by doctors, but in most cases our doctors have never seen or were never shown how to do it. Most of the patients it is not done. They expect that it must be done by nurses.”

Wise *et al.*, (2014:1) report that a total of 2,244 of the approximately 10,000 clinicians who were sent the survey responded. Most of the 2,244 (79%) who completed the survey were physicians in training and the majority were living in North America (53%). The majority of responders (85%) knew IAP, IAH and ACS, but only 28% were aware of the WSACS consensus terms of IAH/ACS. This survey revealed that the clinician’s knowledge of published consensus definitions, measuring techniques of intra-abdominal pressure and the clinical management is not enough although most responding clinicians claim to know IAH and ACS.

THEME 2: COMPLICATIONS SUFFERED BY PATIENTS

Complications suffered by patients because of open abdomen are of great concern to participants. Demetriades (2012:17-24) states that the open abdominal technique is associated with serious complications even though it has saved many lives and has addressed many problems related to primary pathology.

Subtheme: infection

Intra-abdominal infection and intra-abdominal wound infection are the most deadly complications linked to open abdomen (Worhunsky *et al.*, 2013:36). Intra-abdominal abscess formation rates are reported to have increased between 10% to 70%. The infections are related to the amount of time the abdominal packs are retained in the abdomen.

The researcher is of the opinion that environment poses a major challenge to the participant where cleaning and disinfection is not properly done. Windows are not opening and we don’t disinfect properly. Sterility is not properly maintained and the dressings are sometimes changed in the unit at the bedside, especially when the patient is too unstable to go to theatre.

This is evidenced by the following quotations:

“Even if we adhere to the aseptic technique the environment where we are nursing a patient plays a major role. In our case windows are not opening. We don’t disinfect adequately, so that’s why we end up having infections even if we adhere to aseptic technique. One out of hundred do not get infection. Ninety nine percent of them get infection (FRUSTRATED AND STRESSED, RAISING ARMS AND DROPPING HER SHOULDERS).”

“The most challenging in the unit is infection. 90% of patients get infected, like Mr S has said cleanliness of the unit. I feel cleaning is not done properly and when we are supposed to admit patients. It is few cases which heal quickly. Once there is an open abdomen there is prolong stay.”

Armstrong (2010:694) states that the second serious complication that increases mortality rates in ICU is intra-abdominal infections. The recommendations for diagnosis and treatment of intra-abdominal infections were recently updated by the new evidence which was revealed by the Surgical Infection Society and the Infectious Diseases Society of America. Mostly the patients who require assessment will be identified by routine history taking, physical examination and laboratory studies. Computed tomography should be performed in adults’ patients having intra-abdominal infection and are not due for immediate laparotomy.

Subtheme: fistula

The participants verbalised that patients get complications such as fistulas and these take time to heal. Costa (2006:357) explains that it become disastrous if open abdomen is combined with a fistula and mortality rates has increased between 30% and 50%. The causes of fistula are: a hole which tear off spontaneously at the adhesion side when patient coughs or during dressing changes and the underlying disease or the open abdomen itself after ill-advised dissection.

This is evidenced by the following direct quotations:

“We have complications such as disembowelment, fistulas and sepsis. These patients always get into septic shock.”

“Other doctors don’t use good material to do dressing. (PAUSE) The suction is too strong and Ng tube goes to Mala (a Sotho name for intestines) and cause fistulas. Patients are getting complications and it is these fistulas which take long time to heal.”

According to Worhunsky *et al.*, (2013:36) the formation of an enteroatmospheric fistula is regarded as the worst complication of the open abdomen. The occurrence of fistula development is reportedly between 5% and 20%, depending on the indication. The exposed bowel does not have sufficient well-vascularised soft tissue making the enteroatmospheric fistula to become a challenging issue whereby it becomes difficult to close spontaneously. A vacuum-assisted dressing applied directly over the fistula is one of the method that is used to control the fistula by preventing spillage and peritonitis.

THEME 3: POOR HOSPITAL ADMINISTRATION

The participants stated that there are problems regarding poor hospital administration. This will be discussed under the following: Lack of protocols, lack of equipment and poor financial management.

Subtheme 1: lack of protocols

The participants stated that they have problems taking care of patients with open abdomen because there are no protocols in the ICU guiding nurses on how to take care of these patients.

“I feel patients with open abdomen should have (PAUSE) don’t know whether to say a procedure or protocol. This starts when you nurse a patient with open abdomen. You have to think of the sitting position, the changing of dressing and the pressure of suction. Be put in a protocol. This is how to nurse patients with open abdomen and this is how to do intra-abdominal pressure. As a guideline on how to manage patients with open abdomen.”

“I also feel that measuring intra-abdominal pressure must be standardised. We must not do it only when there is a problem. We all know that all patients with open abdomen must be done six hourly. We can eliminate a lot of problems (WITH EMPHASIS, NODDING HIS HEAD).”

Plost and Nelson (2007:153-156), however, describe a protocol as an evidence-based model whereby the best nursing care practices were initiated, tested and used in ICU. Increased survival rates for patients and reduction of ICU costs are due to the increased usage of protocols. Matlakala, Bezuidenhout and Botha (2014:6) expound on a study which was done in a South African ICU, and the results were that lack of protocols is a challenge in the ICU. Lack of

protocols impact negatively on nursing care. Unavailability of protocols results in the ICU experiencing problems because the nurses do not have guidance and direction on how to care for patients in ICU when doctors are not around. This results in many medical errors and increased infection rates.

Subtheme: lack of equipment

The participants verbalised that there is no equipment, such as suction points, equipment to do intra-abdominal pressure and equipment to do VAC dressings.

This is evidenced by the following quotations:

“The suction point is not working. We use one suction point. If the patient has open abdomen we need to have two suction points. One for the abdomen and one for the respiratory part. We are introducing infection.”

“The equipment for measuring intra-abdominal pressure. We don’t have equipment. We need to run around looking for equipment to do intra-abdominal pressure.”

It is not only in this study that participants complained, but Matlakala et al., (2014:n.p) also stated that unit managers showed and agreed that equipment are not available and are of poor quality. Insufficient amount of buying equipment’s is a big challenge related to material resources. Available equipment found in ICU are old and not working properly. The pharmacy or central sterilising department always delay when they are issuing medication. This result in poor quality of nursing care, because nurses had to leave their patients and wait for long hours in pharmacy before medication is issued.

Subtheme: poor financial management

The participants stated that open abdomen patients have infections which lead to prolonged stay in ICU and hospital. This puts financial strain on the hospital budget.

This is evidenced by the following quotations:

“With infection it leads to a lot of strain on the hospital budget. Once they start them on antibiotics that are very expensive others develop multidrug resistant. They have prolong of ICU stay. We have to start them on inotropic support because they show signs of infection. They drop their BP. It’s more money into the system.”

“They get resistant from antibiotics.”

Dhillon, Shah and Rimawi (2015:n.p) explain that ICUs carry a high risk for nosocomial infections, contributing to an increase in morbidity, mortality and healthcare costs. In order to reduce the occurrence of ICU nosocomial infections, healthcare providers should acquire aggressive infection control measures. In 2002, the Centre for Disease Control and Prevention mentioned 417,964 healthcare-associated infections and 99,000 facilities in the United States among critically ill adults and children in an ICU. The serious healthcare-associated infections involve catheter-associated urinary tract infections (40%), ventilator-associated and healthcare-associated pneumonia (25%), catheter-associated bloodstream infections (10%) and surgical site infections. Healthcare-associated infections, including those secondary to multidrug resistant gram-negative bacteria (*Acinetobacter*, *Pseudomonas*) and *Clostridium difficile* annually account for \$29 billion dollars in the United States per year.

RECOMMENDATIONS FOR NURSING EDUCATION, NURSING RESEARCH AND NURSING PRACTICE

Nursing education

- The findings of the study can add value to nursing education if they can be included in the nursing curriculum offered at nursing colleges and universities.

Nursing research

- Further extensive research should be done on the experiences of patients to assess how they cope when having open abdomen procedures done to enhance quality nursing care, reduce their hospital and ICU stay and reduce hospital costs.

Nursing practice

- Protocols to support professional nurses should be developed and implemented in intensive care units.
- The compiled recommendations can be implemented in hospitals and training schools in South Africa.

CONCLUSIONS

The study explored the experiences of professional nurses in taking care of patients with open abdomen in an intensive care unit in an academic hospital in Gauteng. The research problem, purpose of the study, objectives and research questions were stated in order to direct the study. The objectives stated were attained. This study used a qualitative, descriptive, explorative and contextual research method.

A non-probability purposive sampling was utilised. The researcher used 24 professional nurses who participated in four focus groups interviews. Three themes emerged, namely difficulty in nursing care, complications suffered by patients and poor hospital administration. Data were analysed using Tesch's eight steps of coding (in Creswell, 2014:198).

Measures of trustworthiness were applied throughout the study. Criteria and strategies of trustworthiness used were credibility, transferability, dependability, confirmability and authenticity. Ethical considerations were upheld. Recommendations to assist professional nurses to take care of patients with open abdomen were supported with literature. Findings may be incorporated into the body of nursing knowledge.

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Table 1: Themes and sub-themes that emerged

THEMES	SUB-THEMES
1. Difficulties in nursing care	1.1 Psychological problems 1.2 Wound care 1.3 Pain control 1.4 Ventilation 1.5 Difficulty in absorbing feeds 1.6 Lack of knowledge and skills
2. Complications suffered by patients	2.1 Infection rate 2.2 Fistula
3. Poor hospital administration	3.1 Lack of protocols 3.2 Lack of equipment 3.3 Poor financial management

Table 2. Summary of recommendations of professional nurses taking care of patients with open abdomen according to central theme, themes and subthemes

THEMES	SUBTHEMES	RECOMMENDATIONS
4.2.1 THEME 1: Difficulties in nursing care	4.2.1.1 SUBTHEME: Psychological problems	<p>Employees should provide debriefing sessions for staff members (3.1.1.1).</p> <p>Professional nurses should be encouraged to attend debriefing sessions (3.1.1.1).</p> <p>Professional nurses should be encouraged to use effective teamwork (3.1.1.1).</p> <p>Encourage communication between members of multi-disciplinary team (3.1.1.1).</p> <p>Encourage members of the multi-disciplinary team to attend ward rounds (3.1.1.1).</p> <p>The social worker should be involved in counselling nurses who experience psychological problems.</p>
	4.2.1.2 SUBTHEME: Wound care	<p>The doctors should change dressing after 48 hours (3.1.1.2).</p> <p>Professional nurses should measure the amount from suction 4 hourly (3.1.1.2).</p> <p>Professional nurses should watch the haemoglobin levels of the patient (3.1.1.2).</p> <p>Professional nurses should monitor arterial blood gases (3.1.1.2).</p> <p>The hospital management should organise regulated suction (3.1.1.2).</p> <p>The wound specialist should assist in dressing leaking colostomies (3.1.1.2).</p> <p>The wound specialist should give in-service training on how to change colostomy bags (3.1.1.2).</p> <p>The wound specialist should provide enough colostomy bags (3.1.1.2).</p>
	4.2.1.3 SUBTHEME: Pain control	<p>Professional nurses should nurse patients in a comfortable position (3.1.1.3).</p> <p>The head of the bed should not be elevated more than forty five degree due to abdominal distention (3.1.1.3).</p> <p>Doctors should not stop analgesia and sedation too suddenly when patients are still experiencing pain (3.1.1.3).</p> <p>Professional nurses should adhere to giving treatment as prescribed to minimise pain (3.1.1.3).</p>
	4.2.1.4 SUBTHEME: Ventilation	<p>Professional nurses should control pain by sedating patients as per prescription to alleviate pain (3.1.1.4).</p> <p>Professional nurses should monitor arterial blood gases (3.1.1.4).</p>
	4.2.1.5	Dieticians should be allocated to the ICU to assess

	SUBTHEME: Difficulty in absorbing feeds	the nutritional status of the patients (3.1.1.5). Dieticians should order feeds for patients according to their nutritional needs (3.1.1.5). Encourage good communication between dietician and nursing staff (3.1.1.5). Encourage dietician to join and be involved during multi-disciplinary rounds (3.1.1.5). Total parenteral nutrition should be commenced if patients are not absorbing feeds (3.1.1.5). The hospital management should supply enough feeds for patients (3.1.1.5).
	4.2.1.6 SUBTHEME: Lack of knowledge and skills	In-service training should be provided to nurses and doctors on a regular basis (3.1.1.6). Shift leaders should be provided in ICU to supervise nursing staff (3.1.1.6). The hospital management should provide nurses with specialities to ICU (3.1.1.6).
4.2.2 THEME 2: Complications suffered by patients	4.2.2.1 SUBTHEME: Infection	Nurses and doctors should adhere to aseptic technique (3.1.2.1). Hospital management should ensure environment is clean (3.1.2.1). The infection control sisters should be involved (3.1.2.1). Personnel protective clothing such as gloves, proper masks and goggles should be provided to staff (3.1.2.1). The professional nurses should adhere to giving antibiotics on specified times (3.1.2.1).
	4.2.2.2 SUBTHEME: Fistula	In-service training should be provided to doctors on a regular basis (3.1.2.2). The hospital management should provide regulated suction (3.1.2.2).
4.2.3 THEME 3: Poor hospital administration	4.2.3.1 SUBTHEME: Lack of protocols	The hospital management should provide ICU protocols (3.1.3.1). Protocols should be signed by the head of department and unit managers and be updated annually (3.1.3.1).
	4.2.3.2 SUBTHEME: Lack of equipment	The hospital management should motivate for equipment to monitor intra-abdominal pressure (3.1.3.2). The hospital should motivate for regulated suction (3.1.3.2).
	4.2.3.3 SUBTHEME: Poor financial management	The hospital manager should increase staffing in ICU (3.1.3.3). The hospital management should motivate staff with remuneration to retain staff with specialities (3.1.3.2).

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December 2015

To whom it may concern

This is to confirm that I, Margaretha Jordaan, a professional and experienced language practitioner, have edited the dissertation

Experiences of professional nurses caring for patients with open abdomen in an intensive care unit in Gauteng

by Mpho Grace Chipu (University of Johannesburg).

I have checked correctness of grammar, language and punctuation, and have recommended corrections and improvements to the best of my knowledge and ability.

Marga Jordaan
BA (Hons)

BA (UNISA) with Afrikaans III and English III

BA Hons (specialising in Translation) cum laude (RAU)

as well as 20 years of experience of language editing of both Afrikaans and English.



FACULTY OF HEALTH SCIENCES

HIGHER DEGREES COMMITTEE

HDC-01-77-2014
13 October 2014

TO WHOM IT MAY CONCERN:

STUDENT: CHIPU, M
STUDENT NUMBER: 909775573

TITLE OF RESEARCH PROJECT: Experiences of Professional Nurses in Managing Patients with Open Abdomen in Intensive Care Unit in Gauteng

DEPARTMENT OR PROGRAMME: MCur

SUPERVISOR: Mrs I Kearns **CO-SUPERVISOR:** Prof E Nel

The Faculty Higher Degrees Committee has scrutinised your research proposal and concluded that it complies with the approved research standards of the Faculty of Health Sciences, University of Johannesburg.

The HDC would like to extend their best wishes to you with your postgraduate studies

Yours sincerely,

A handwritten signature in black ink, appearing to read "Y Coopoo".

Prof Y Coopoo
Chair, Faculty of Health Sciences HDC



UNIVERSITY
JOHANNESBURG

FACULTY OF HEALTH SCIENCES

ACADEMIC ETHICS COMMITTEE
NHREC Registration no: REC-241112-035

AEC01-81-2014

29 August 2014

TO WHOM IT MAY CONCERN:

STUDENT: CHAPU, M
STUDENT NUMBER: 909779575

TITLE OF RESEARCH PROJECT: *Experiences of Professional Nurses in Managing Patients with Open Abdomen in Intensive Care Unit in Gauteng*

DEPARTMENT OR PROGRAMME: *ICUR Medical and Surgical ICU*

SUPERVISOR: *Ms I Kama* **CO-SUPERVISOR:** *Prof WE Nel*

The Faculty Academic Ethics Committee has scrutinised your research proposal and confirm that it complies with the approved ethical standards of the Faculty of Health Sciences; University of Johannesburg.

The AEC would like to extend their best wishes to you with your postgraduate studies.

Yours sincerely,

Prof M Poggenpoel

Chair : Faculty of Health Sciences AEC



GAUTENG PROVINCE

HEALTH
REPUBLIC OF SOUTH AFRICA

OUTCOME OF PROVINCIAL PROTOCOL REVIEW COMMITTEE (PPRC)

Researcher's Name (Principal investigator)	Mpho Grace Chipu
Organization / Institution	University of Johannesburg
Research Title	Experiences of Professional Nurses in Managing Patients with Open Abdomen in Intensive Care Unit in Gauteng
Contact number	Address: N/A Contact no: 011 488 3376/3378 Cell: 072 298 0413 Email: chipu.mpho@gmail.com
Protocol number	GP 2015RP27 148
Date submitted	04/02/2015
Date reviewed	March 2015
Outcome	APPROVED
Date resubmitted	N/A
Date of second review	N/A
Final outcome	APPROVED

It is a pleasure to inform you that the Gauteng Health Department has approved your research on "Protocol Title: Experiences of Professional Nurses in Managing Patients with Open Abdomen in Intensive Care Unit in Gauteng. The Provincial Protocol Review Committee kindly requests that you submit a report after completion of your study and present your findings to the Gauteng Health Department.

Approves not approves

Dr R Lebethe
Acting DDG: Hospital Services

Date 11 03 2015

