

Experiences of University of Namibia nursing students on needle stick injuries: A qualitative study

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ABSTRACT

Objectives: The objective of this study was to explore and describe the experiences of University of Namibia nursing students on needle stick injuries.

Methods: A qualitative exploratory was used. Unstructured individual interview was conducted to collect data from ten nursing students who were purposively selected. Thereafter, data were analyzed using content thematic qualitative analysis. The study was granted permission and ethical clearance from the University of Namibia as well as Ministry of Health and Social Services.

Results: Three themes were generated; experiences of nursing students on needle-stick injury, factors contributing to needle stick injury among nursing students and recommendation made by student nurses to improve prevention and management of needle stick injuries. Findings revealed that nursing students who pricked themselves experienced fear of contracting or spreading blood borne diseases, in addition, they have experienced emotional problems as a result of lack of support from the hospital.

Conclusions: Results of this study revealed that needle stick injuries caused emotional trauma to the students therefore, education and prevention strategies were suggested. Moreover, students identified the need to introduce a structured counselling programmed for needle stick injury victims and improvement in the incidences reporting procedure.

Key Words: *Experiences; Nursing students; Needle stick injuries; Nursing clinical practice*

INTRODUCTION

A needle stick injury is a percutaneous piercing wound typically set by a needle point, but possible also by other sharp objects, commonly encountered by people handling needles in the medical setting (1). In addition, stick injuries in health care settings may be caused by hollow-bore needles, lancets, scalpels and contaminated broken glass (2). Undergraduate nursing students are expected to perform invasive procedures such as the administration of injections via the intramuscular or subcutaneous routes, therefore they are at risk of needle stick injuries.

Upon entering the undergraduate program nursing students have no practical experience on how to handle needles and other sharp instruments. There by the risk of sustaining needle stick injuries is high because the student is inexperienced and unskilled. Benner suggests that students needs to practice in order to develop clinical competence in nursing on how to handle needles and other sharp objects and to follow policies and protocol on how to safely handle needles (3).

Nursing students in the undergraduate program at the University of Namibia (UNAM) are required to perform clinical procedures as part of their learning outcomes. These students initially perform non-invasive procedures in their first-year. As they advance in their levels of study, they start to perform invasive procedures. The students are able to practice these procedures in the skills laboratory prior to performing the procedures on 'real patients' in the real-world setting. The skills laboratory setting provides a safe environment where the students are able to practice on simulated patients and mannequins. Clinical procedures may be practiced repeatedly in the simulated setting until the student becomes competent.

Needle stick injuries represent an important workplace issue in health care settings, they are part of a broader area known as percutaneous exposures incidents, a term referring to cutaneous exposures to blood (4). Injuries from contaminated devices represent a key vector in transmission of blood borne diseases. However, Blanche and Durrheim claims that the risk of contracting hepatitis B and C from needle stick injury are 3-10% and 3% respectively and 0.3% for HIV (5). Tesch, McKinney and Alexanian reported that one half of all medical students and nursing students have experienced an exposure to blood or body fluids during the final two years of study (6).

The most disturbing issue on needle stick injuries and health professional students is that they do not report such incidences. A study conducted by Graaf, Houweling and Zessen indicated a large number of nursing students exposed to biologically hazardous material but did not report the incident (7). Despite that, students exposed to biological hazards experience fear of contracting potential infections such as HIV/AIDS, Hepatitis B and C. They also experienced feelings of fear, insecurity, and low self-esteem (7). A study conducted at the UNAM revealed that in 2008 academic year alone, 17% of nursing students sustained needle-stick injuries, but only 55% of these reported it. In addition, in addition, these who reported were not adequately supported. It was revealed that 68% of the reported cases were not tested for HIV/AIDS (8). Despite this, there is no evidence of other study conducted on the nursing students and their needle stick injuries experiences. Therefore, their recent experiences remain unknown. This study was therefore conducted with an objective to explore and describe the experiences of University of Namibia nursing students on needle stick injuries.

Research design and methods

Research design

Qualitative exploratory design was utilized in this study.

Population and sampling

The population for this study consisted of fourth year Bachelor of Nursing Science (clinical) honors students at the University of Namibia for academic year 2015. The first to third year cohorts were excluded because their exposure to invasive procedures in clinical setting was limited as most are practiced in clinical settings. In addition, a fourth-year cohort in most cases is less supervised in clinical settings. A total of ten nursing students were purposively selected to participate in this study, there were 78 registered students in the fourth-year cohort. Purposive sampling is based on the researcher's judgement regarding participants or objects that are typical or representative of the study phenomenon, or who are especially knowledgeable about the study at hand (9). The inclusion criterion was; fourth year nursing students who pricked themselves with needles while in clinical practice at the hospitals or clinics. Therefore, only ten students met this criterion.

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Data collection

Data were gathered through the use of unstructured interview conducted by the researcher. The researcher approached the students at the university campus and asked them to indicate in a small paper if they experienced a needle stick injury in clinical settings. Then all students who indicated they experienced needle stick injury were approached to participate in the study and all agreed to participate. The purpose of the study was explained to potential participants and informed consents were signed. Each interview lasted for 20-25 minutes. Data were collected over a period of one week.

Trustworthiness

The researcher implemented the four criteria for developing trustworthiness of a qualitative enquiry as proposed by Lincoln and Guba; credibility, dependability, transferability and conformability (10). Strategies used to ensure these criteria were prolonged engagement with participants and data were collected until data saturation occurs. Tape recorder was used to obtain accurate, direct quotations and to ensure correct transcriptions. Regular consultations with the course supervision on the themes and sub-themes were conducted.

Data analysis

All data from interviews were listened to and transcribed in verbatim. Transcribed data was coded into broad categories dictated by the interview questions. The categories were refined through repetitive scanning of the data. During this process subcategories or new categories were identified and analysis continued until no new categories emerged (11).

Ethical considerations

Ethical approval was granted from the office of the permanent secretary of the Ministry of Health and Social Services via the research unit. Permission to interview UNAM students was granted by the office of the Associate Dean. Informed consent forms were signed prior to interviews and participation in the study was voluntary. Anonymity was ensured by not asking participant their names and unique numbers were allocated to their responses. Confidentiality was ensured by not sharing the information linked to the participants name with other individuals. The privacy of the participants was ensured by making sure that no one else has access to collected data except for the researcher and supervisors.

RESULTS

Socio-demographic characteristics of participants

Participants were of different ages and have different years of work experiences in healthcare settings prior to registration in the nursing programme. However, all were registered in the fourth-year level of the degree programme. More than half of the participants interviewed were aged 20 to 25 years. Table 1 illustrates the age, years of work experience in healthcare settings prior to registration in the nursing degree programme and percentage of study participants repeating the study level.

TABLE 1:
Socio-demographic characteristics of participants

Characteristics	Statistics
Age in years	
20-25	6
26-30	1
31-35	1
36-40	1
41 and above	1
Average age	23
Years of prior work Experience in Health Care Settings	
No work experience	8 (80%)
Less than 2 years' work experience	1 (10%)
More than 2 years' work experience	1 (10%)
Repeating a study level	
Yes	1 (10%)
No	9 (90%)

Study results

The study explored the experiences of the University of Namibia nursing students on needle stick injuries via unstructured interviews. The three themes were generated; experiences of nursing students on needle-stick injury, factors contributing to needle stick injury among nursing students and recommendation made by student nurses to improve prevention and management of needle stick injuries. These themes were generated from ten categories identified from the responses. The Table 2 below shows a summary of study.

TABLE 2:
Summary of study results

Categories	Themes
Fear of contracting or spreading blood borne diseases	Experiences of nursing students regarding needle-stick injury
Emotional problems	
Feeling of anxiety and anger, post exposure	Factors contributing to needle stick injury among nursing students
Recapping of needle	
Lack of awareness on hazard precautions and Lack of training on universal precaution measures	
Lack of experience about procedure being conducted	
Fear when patient serological status is known	Recommendation made by nursing students to improve management and prevention of needle stick injury.
Training and education in universal precautions and sharps management	
Proper support when needle prick injury occur	

Experiences of nursing students on needle-stick injury

This theme reflects on the experiences of the needle stick injuries as expressed by nursing students. The participants have expressed their different views on the experiences they encountered regarding needle prick injury. They had fear of contracting or spreading blood borne diseases such as HIV/AIDS.

*'The first thing that come into my mind after I prick myself was that, I might get HIV. Although I immediately went for HIV testing and the result was negative, I was very afraid'*P10

Some participants expressed how they have gone through emotional problems such as depression as a result of lack of support from the hospital team.

*'I felt numb...I felt like uhm a bit emotional, but I didn't show it... I didn't know what to do, I was left to pick up the pieces, nurses and doctors didn't even care, I was depressed!'*P5

In addition, participants expressed feeling of anxiety and anger after needle stick injuries, this is because they blamed themselves for not adhering to precaution measures when handling needles.

*'I am feeling very angry with the sisters because of the way that this student was treated... ence. I am ashamed that a registered nurse can treat a student nurse so badly and I was angry at myself for not taking great care when handling the needle'*P6.

Factors contributing to needle stick injury among nursing students

This theme includes participants' perceived factors of contributing to needle sticks among nursing students. Some participants indicated that recapping of needle greatly contribute to needle stick injuries among nursing students.

*'...uhm I was administering Heparin subcutaneously and then when I finish...uhm, when I pulled out the needle from the patient I suddenly recapped it and pricked myself on the left thumb.'*P3

Other factors revealed as contributing to needle stick injuries among nursing students are lack of awareness on hazard precaution and a lack of training on precaution measures in clinical settings.

*'I was taught a bit about universal precautions when I was a first-year student but now can't remember anything, we were not taking through all steps'*P8

Furthermore, the study revealed lack of experience performance of procedures being conducted as one of the factors contributing to needle stick injuries. This is because students first learn procedures in the clinical skills

laboratory at the university campus before they practice in clinical settings. Therefore, needle stick injuries may sometimes occur during first attempt of a procedure in clinical settings.

*'I was supposed to give the patient a Clexane injection so there's always a limited amount of kidney dishes in the ward...so I thought to myself, the Clexane comes already packed so when I'm done, I'm gonna put it back in that packet and throw it away in the sharps container...I gave the injection and with the putting of the Clexane syringe back into the packet, I don't know how it happened, but it went straight into my finger'. I failed to follow all steps because I am was not used to give injections'*P2

Most participants expressed that fear when patient HIV/AIDS serological status is known as causing the students to be anxious in their daily practices, leading them to stick themselves with sharp instruments, including needles.

*'I was working in maternity ward as part of my practical experience, I have to deliver a woman on HAART who comes in with 8 cm dilated. I was so scared that I might cut or prick myself while attending to her. In fact I ended up pricking myself because I was shaking uncontrollable and lost control of the needle while injecting lignocaine'*P4

Recommendation made by student nurses to improve management and prevention of needle stick injury

This theme includes suggestions made by nursing students regarding the prevention of and improvement in the management of needle stick injuries in the clinical settings.

Participants suggested that there is a need for continuous training and education of all staff involved in the management of needle stick injuries. This is because students experienced that nursing staff seems not aware of how to handle them after needle stick injuries.

*'I would advise that you do not bother taking them (medicines) because it would be useless, the guy tested negative, you are negative and is not in a window period so you just putting yourself at the misery of taking the medication. I think this is because the registered nurse does not have proper information on protocols regarding needle stick injury. Really nurses must get regular training and education on policies regarding needle prick injury'*P1

*'...they (the staff in the ante-natal clinic) didn't care what's going to happen afterwards until my supervisor had to fight for me and they said...'No in this clinic we don't follow this (the protocol), no blood must be drawn if you are negative. So, staff nurses must have at least a clue off what must happen next after needle prick injury'*P6

Most participants felt that there is a need for proper support to students when needle prick injury occur which include counselling and assistance by the university and hospital staff, with the current management practices, it seems there is improper counselling and management

'...I didn't receive counselling in a unit where I pricked myself, if I received a bit of counselling I could have coped much better' P3

*'...when I went to the doctor, the doctor said there's nothing wrong with me, I must take the medicines prescribed and come back for follow-up for another HIV test, but how can they say nothing is wrong with me when I am not sure whether the patient is on widow period? og!'*P7

DISCUSSIONS

Undergraduate nursing students have no practical experience on how to handle needles and other sharp instruments in health care settings, therefore they are at risk of needle stick injuries. This study has highlighted the experiences of nursing students on needle stick injuries while in clinical settings for their placements. Discussion of the study results is organized according to the three themes emerged from this study.

Experiences of nursing students regarding needle-stick injury

According to the students sampled, needle stick injuries evoke feelings of contracting blood borne diseases from the patients/clients. This is because in most cases patients are not tested for HIV/AIDS and other blood borne diseases which may be spread as a result of needle stick injuries. The similar findings were reported by Ziady, who stated that nursing students who experienced a needle stick may experience fear of contracting or spreading a blood borne disease (12). The concern is not only contracting diseases from the patients but there is also a concern of spreading diseases from students to their client. This is a sign that nursing student care about safety of patients under their care.

Moody revealed that medical doctors experienced emotional stress after needle stick injuries (13). This feeling does not affect the needle stick injury

victim alone but their families as well. In this study, nursing students also expressed feelings of being depressed after needle stick injuries, however, this study did not reveal how family members of the victims are affected by the incidences. Furthermore, this study revealed that needle stick injuries evoked feeling of anger in the nursing students. The anger was specifically directed to themselves for failing to practice self-precaution measures that lead them to be pricked by needles. Similar findings were reported by Mendias, who indicated that some of the health workers who sustained needle-stick injuries expressed the incidence as traumatic and developed feelings of anxiety and anger (14). In most incidences, needle stick injury victims do not share the details of the injury to anyone due to fear of rejection, but rather internalized it and blame themselves.

Factors contributing to needle stick injury among nursing students

Students in the current study highlighted how their inexperience of handling needles put them at risk of needle stick injuries. In some incidences, nursing students try to recap needles after use and this has led to the injuries. This is in accordance with Jagger who indicated the single most frequent cause of needle stick injuries was recapping needles after use (15). In addition, a study conducted by Gallop et al., have also state that maximum number of needle stick injury occur during recapping of needles (16).

Kocinski and Sloane stated that a lack of educational and training relating to universal precautions and the incorrect discarding of used needles were some of the causative factors contributing to needle stick injury. In the current study, results revealed that nursing students felt they do not have adequate knowledge and skills of how to handle sharp instruments and this lead to injuries. Training was found to be the crucial factor in predicting the occurrence of needle stick injuries among the nursing staff (17). Therefore, as one of the recommendations made by the students, there is a need to strengthen information to students on precaution measures and handling of sharp instrument, including needles.

Students in the health care settings are at high risk of needle stick injuries due to their relative inexperience of carrying procedures. This is because of inadequate exposure to clinical cases or has not practiced enough in order to gain competencies required to carry out procedures. In the current study, nursing students indicated that they are victims of needle stick injuries because they do not have adequate experience in performing some of the procedures involving the sharp instruments. There was also fear expressed regarding nursing care to patients who are known HIV positive. It seems this makes students more nervous and lead to needle stick injuries. Similar results were reported by Vail et al., that student nurses were extremely anxious whilst caring for patients known to have a blood-borne pathogen. This is especially true when these students administer an injection to a known HIV positive patient (18). Therefore, nursing students identified a need to equip health care workers who work with them in clinical settings to manage the needle stick injuries and some counselling and support measures as they were identified to be not up to standard.

LIMITATIONS

Despite the fact that findings of this study are consistent with literature on this topic, the qualitative nature limits the generalizability of the findings. In addition, the principal researcher was a fourth-year student at the time data was collected, due to sensitivity of the phenomena studied, fellow students who were participants were perhaps not open to discuss their experiences of needle stick injuries.

STUDY IMPLICATIONS

This study has implications on the safety of nursing students in clinical settings. In addition, it also has implications on the nursing education and practice. This study revealed a gap in the knowledge and skills of nursing students and staff in clinical settings in terms of prevention and management of needle stick injuries. Therefore, education on universal precautions was recommended. Moreover, due to emotional stress that students experience after needle stick injuries, there is also a need to implement counselling programmed to support students who prick themselves while in clinical settings. Counselling programmed will also help students to adhere to post exposure treatment prescribed and to cope with stress after the trauma.

CONCLUSIONS

This study explored nursing students' experiences of needle stick injuries in clinical settings. It is evident that nursing students undergo emotional distress and fear mostly aggravated by blaming self and lack of support.

Needle stick injuries are caused by recapping of needle, limited experiences of clinical practice and skills of how to handle sharp instruments. Students seems also to have fear of nursing patients who are known HIV positive and therefore leading to anxiousness and students prick themselves. Education and training on prevention of and management of needle stick injuries were recommended.

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