

Phenomenology Study: Occupational Diseases and Accidents in Nurses in Coastal and Border Areas

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Abstract: Nurses are health workers who are at high risk of experiencing occupational diseases and accidents. The purpose of this study was to obtain an overview of the experiences of nurses in coastal and border areas who have experienced occupational diseases or accidents. This study used a qualitative design with a phenomenological method. Participants were selected using purposive sampling techniques of 9 nurses from different rooms. Data were collected using in-depth interviews related to experiences. 7 themes were identified in this study, namely: 1) Implementing Occupational Health and Safety is Important to Maintain the Safety of Yourself and Others. 2) Nurses experience more than one type of occupational disease or accident during work. 3) Unsafe acts and conditions are the causes of occupational diseases and accidents. 4) Nurses' initial response when experiencing occupational diseases or accidents. 5) Changes felt by nurses after experiencing occupational diseases and accidents. 6) Efforts to prevent occupational diseases and accidents by nurses and hospital management. 7) Nurses need Hospital Management support to maintain their Occupational Health and Safety. Conclusion: occupational diseases and accidents can be caused by the negligence of nurses themselves, co-workers, patients, and patient companions, the lack of managerial roles, and an unsafe environment. Experience of work accidents causes physical and psychological discomfort in nurses which can be temporary or long-term. Therefore, support from all parties is needed to maintain Occupational Health and Safety for nurses.

Keywords: Accidents, hospital, human, occupational diseases, occupational health

Submitted: 8 October 2024, revised: 15 January 2025, accepted: 17 January 2025, published: 30 January 2025

INTRODUCTION

Occupational diseases and accidents in nurses are diseases and accidents that occur due to activities carried out during work and the work environment. Occupational diseases and accidents in nurses in developing countries are caused by exposure to hazards such as biological hazards (blood-borne pathogens, Hepatitis B, and Tuberculosis from patients), psychosocial hazards (workplace violence, fatigue, job dissatisfaction), ergonomic hazards (musculoskeletal complaints), chemical hazards (exposure to drugs, latex materials and anti-neoplastic) (Rai et al., 2021). Physical hazards (hearing problems, headaches, accidental falls) and electrical or mechanical hazards (fire, electric shock) (Prajwal et al., 2020).

Occupational diseases and accidents do not only occur in one patient room but in almost all rooms. In the operating room, 84% of nurses are exposed to the hazards of radiation exposure, blood-borne diseases, and nosocomial diseases, significant risks are exposure to anesthetic drugs and gases, latex allergies, and muscle pain due to inappropriate body position (Saleh et al., 2020). The psychiatric ward identified 10 work activities that have hazards such as lighting, disinfectants, contracting HIV/AIDS, Hepatitis A, Hepatitis B, Tuberculosis, wrong body posture, doing repetitive work, being attacked by patients, frequent contact with patients, panic, overwork, physical and sexual verbal violence (Indragiri & Yuttya, 2020; Yulis et al., 2023). Other risks experienced by nurses in all rooms are falls, slips, verbal

violence from patients and co-workers in nursing staff, Low Back Pain, Hernia Nucleus Pulposus and drug resistance ([Yulis, 2020](#)).

Prevent occupational diseases and accidents by preparing regulations for primary prevention, reducing exposure to potential hazards, conducting monitoring and supervision, education and training ([Keefe et al., 2020](#)). Reducing exposure to potential hazards in nurses can be done through in-depth interviews with nurses who have experienced occupational diseases and accidents. Related to the cause, time of the incident, feelings at that time, actions taken, and the impacts caused. The results of this interview are important for eliminating hazards or planning other appropriate interventions to control health risks.

This study was conducted at a referral hospital located in the coastal and border areas of Malaysia-Sabah. Preliminary study at the research location, in 2021 to 2023 there were 15 nurses who experienced needle stick accidents and 1 nurse who was exposed to patient body fluids in the eyes. Both work accidents have a high risk of becoming a port of entry for disease transmission from patients to nurses. Another problem is the high number of infectious diseases in the area: 760 cases of pulmonary TB, 553 cases of pneumonia, 4 cases of leprosy, 84 cases of measles, 1223 cases of diarrhea, 109 cases of AIDS (cases new), 653 cases of AIDS (cumulative cases), and 459 cases of Sexually Transmitted Infections (STIs) ([Badan Pusat Statistik, 2024](#)). The high number of infectious diseases in the area is at risk causing disease transmission to nurses who provide direct care to patients in health facilities and . In addition, nurses who care for patients with infectious diseases are vulnerable to experiencing mild stress (85.1%) and moderate stress (14.9%) ([Suhaya & Sari, 2019](#)).

The aim of this research is to use various explanations from nurses about their feelings, perceptions, thoughts and experiences when experiencing occupational diseases or accidents when caring for patients. Another objective is to obtain information related to the causes, actions taken during the incident, the impact of illness or work accidents experienced by nurses, and preventive efforts made by nurses and hospitals. The results of this explanation allow nursing managers to take preventive measures and handle illnesses or work accidents experienced by nurses.

METHOD

This research uses a qualitative research method with a phenomenological design. This method focuses on nurses' perceptions of Occupational Health and Safety and examines more deeply the experiences of nurses who have experienced occupational diseases and accidents. This research was conducted at a hospital in North Kalimantan, Indonesia. The population in this study were all nurses who had experienced occupational diseases or accidents at the research location. The selection of participants used a purposive sampling method with maximum variation sampling type. The researcher together with the key person (head of the hospital's OHS team) determined 10 (ten) potential participants according to the research objectives, room variations and inclusion criteria: 1) Nurses who have experienced occupational diseases or accidents. 2) Willing to become a participant by giving consent through informed consent. Furthermore, for data variation and completeness of information, researchers selected participants from several locations: Patient Room, Perinatology Ward, Intensive Care Unit (ICU), Operating Room (OR), Emergency Unit and Out Patient Dept. This study has reached data saturation or no new information was obtained from the ninth participant, so the interview was stopped at the ninth participant. The participants involved in research is 9 (nine) participants.

This research has obtained ethical approval from the Research Ethics Sub-Committee at the research location in July 2023. The entire research process refers to the principles of research ethics ([Polit & Beck, 2017](#)): 1) Beneficence: this research is beneficial to participants, researchers build a relationship of mutual trust with participants, pay attention to participants' emotional responses, and pay attention to interview times. 2) Respect for human dignity: researchers provide an explanation of the objectives, benefits, procedures, risks, guarantees confidentiality of information and should not be pressured during the research. 3) Justice: provide equal treatment to all participants. 4) Anonymity and confidentiality: researchers guarantee the confidentiality of data obtained from participants.

Data collection was carried out from August to September 2023. The data collection method was carried out using in-depth interviews for 50-60 minutes in a room attended only by researchers and participants. The data collection instruments used were the researcher himself, a questionnaire for sample characteristics, an interview guide, a digital audio recorder to record interview results, and field notes to record respondent expressions. Data analysis was carried out using the Colaizzi (1997) method ([Polit & Beck, 2017](#)), starting by listening to the results of the interview and then writing it into written text. This text is then read repeatedly while listening to the recording, to determine which statements are considered related to the research. These statements are then collected according to categories, sub-themes, and themes. The validity of the data was determined using four steps. Credibility by validating data on participants. Dependability by asking the second and third authors to audit all research activities. Confirmability by showing all documentation of research results to the second and third authors. Transferability means that researchers make research results complete and clear so that readers can easily understand them ([Afiyanti & Rachmawati, 2014](#)).

RESULTS

Description of Participants

The participants who participated in this research were 9 executive nurses who had experienced occupational diseases or accidents while working at the hospital. Work period 2- 4 years. All educational backgrounds Associate Degree in nursing. Participants' ages varied between 24-32 years. Gender, 8 women and 1 man. Marital status, 2 people are married and 7 people are not married. Considering the variation in data, participants were selected from rooms with different characteristics: Patient Room, Perinatology Ward, Intensive Care Unit (ICU), Operating Room (OR), Emergency Unit and Out Patient Dept. Ethnic backgrounds vary; Javanese, Bugis and Toraja. The results of interviews conducted with 9 participants were described into seven themes, namely:

Theme 1. Implementing Occupational Health and Safety is Important to Maintain the Safety of Yourself and Others

Nurses perceive Occupational Health and Safety (OHS) differently. Six participants believed that the implementation of OHS Management Systems in hospitals is important because nursing is a profession that is at risk of experiencing occupational disease or accidents. *"Risikonya seperti tertusuk jarum, saat dokter menjahit mungkin terburu-buru dan jaringan atau lemak yang dijahit itu keras, nah nariknya keras bisa saja kita yang menjadi asisten dokter yang berada disamping beliau pada saat menjahit bisa beresiko tertusuk"* (P5). Three participants were of the opinion that they were obliged to maintain Occupational Health and Safety because they had the potential to be a source of disease transmission to patients being treated or their families at home. Three participants thought that if they were sick it would affect their work productivity/performance. Four other participants thought that OHS was about the importance of using Personal Protective Equipment (PPE) to prevent disease transmission or occupational accidents.

Theme 2. Nurses Experience More Than One Type of Occupational Disease or Accident During Work

The participants I interviewed in this research were 9 nurses who were registered in the OHS Team as having experienced occupational accidents. Occupational diseases experienced by nurses according to 8 participants were verbal violence from patients and co-workers, physical violence from medical personnel, gastritis due to delaying eating when there were many patients, disturbed sleep patterns, feeling sad when seeing the patient's condition, decreased consciousness or fainting while working. *"Pada saat itu saya pernah menjadi asisten 2 dan mengalami pingsan pada saat operasi"* (P6). Musculoskeletal disorders are Low Back Pain (LBP) due to lifting heavy objects, pain in: neck, shoulders, arms, waist, back, knees and feet after patient mobilization, Cardiopulmonary Resuscitation (CPR), standing for a

long time during surgery, falls while working. According to 3 participants, musculoskeletal pain are usually felt at the end of the shift, especially at the end of the night shift. " *Dinas malam... dikarenakan waktunya lebih lama yah dan juga pada waktu pagi itu ada kegiatan memandikan, mengganti seprai pasien nah jadi nyerinya lebih sering muncul pada saat saya dinas malam*" (P7).

According to 6 participants, occupational accidents that nurses have experienced include being pricked by a needle, having their toe crushed by a 50 litre oxygen cylinder, being splashed with a patient's bodily fluids while carrying out procedures or washing equipment, sprained hands, falling off a motorbike when returning home from work due to slippery roads around the hospital, and slipping due to slippery floors. " *Terpleset sering terjadi terutama pada saat kami memandikan bayi dikarenakan percikan air yang jatuh ke lantai yang membuat lantai menjadi basah* " (P3). According to 4 participants, the time of the needle stick incident was the afternoon shift and the end of the shift on the second night (morning) due to fatigue " *The incident happened when I was on night duty on the second night, maybe I was less focused so I got pricked by the needle... in the morning around 6 am*" (P2).

Theme 3. Unsafe Act and Conditions are the Cause of Occupational Diseases and Accidents

According to 9 participants, the causes of occupational diseases and accidents were caused by several factors such as negligence of themselves, co-workers, patients, patient companions/families, high workload, work schedule, manual handling and mechanical factors. 1) Self-negligence includes: rushing and not focusing while working, ignoring personal safety. " *Nirbekennya kebetulan dipakai untuk jaringan pasiennya... kondisinya dokter juga mau yang cepat...yang penting terambil dulu disponya soalnya dokter membutuhkan alat lain. Nah disitu posisi saya sebagai perawat instrument...karena mau gerakan cepat jadi saya langsung mengambil saja ka disponya... akibatnya saya tertusuk*" (P9). Carrying out unsafe act such as: not bringing a safety box when taking blood, incomplete equipment preparation, recapping needles, and working not according to procedures. Apart from that, there were participants who did not ask friends for help when carrying heavy items (50 litre oxygen cylinders), were tired due to lack of rest and sleep, did not pay attention to the condition of the safety box which was full, worked in two different hospitals, delayed eating and drinking when there when the patients is critical, nurses forced themselves to go to work when they are sick or have a occupational accident because they didn't want to add to the workload of their co-workers. " *Memang kurang tidur, saat itu saya merasakan keringat dingin mau muntah. Dari instrumentator sudah menawarkan apakah mau duduk, saya jawab tidak karena juga tidak enak dengan dokternya...lihat kurang sopan. Jadi setelah itu saya mencoba menutup mata saya sebentar ternyata pada saat saya buka mata saya sudah di tempat tidur (pingsan saat bekerja di makar operasi)*" (P6)... " *Disitu kondisinya saya sedang menggunakan pakaian hazmat yah kak, jadi pada saat tertusuk itu saya tidak mungkin langsung membuka semua APD yang saya pakai. Jadi saya menunggu semua selesai, mungkin sekitaran 2 jam dari kejadian saya baru mencuci tangan saya yang tertusuk di air mengalir...karena posisinya hanya dua orang yang dinas*" (P5).

2) Co-workers include: verbal and physical violence from co-workers who are dissatisfied with the results of the nurse's work, as well as fast work demands from co-workers so that nurses do not have time to wear PPE. " *Suction biasanya dilakukan pada pasien prioritas 1 kak, jadi kadang dokter sudah meminta kami untuk melakukan suction karena kondisi serius jadi kami biasanya tidak memakai google* " (P9). 3) Patients and patient companions who sometimes engage in verbal violence due to long waiting times or restrictions on patient companions in critical rooms or when the patient is critical. 4) Work load includes: the number of nurses is not proportional to the number of patients, many actions in one service, patients in urgent and critical condition so that nurses have to delay eating, co- workers who suddenly get sick which causes a shortage of staff, receiving additional duties when due to accreditation, fatigue which causes nurses to forget to wear PPE, mobilizing critical patients and bathing patients still manually or without the use of tools.

5) Service schedules include: irregular work schedules due to certain conditions, long work duration during night shift or when participating in major operations, as well as changes in service schedules in polyclinics which initially only served in the morning shift to morning and afternoon services which resulted in reduced energy. " *Awalnya kami (dua orang) berbagi tugas yah kak misal saya menginput data dan*

teman saya yang melakukan perawatan luka. Akan tetapi karena terbaginya jadwal shift (pagi dan sore) mau tidak mau saya yang menginput data saya juga yang melakukan perawatan luka bolak-balik jadinya lumayan kewalahan apalagi jika pasien banyak" (P8). 6) Use of PPE such as goggles which causes decreased vision. 7) Use manual handling when mobilizing patients or carrying heavy equipment. 8) Mechanical factors such as tripping over cables and slippery floors.

Theme 4. Nurses' Initial Response When Experiencing Occupational Diseases or Accident

The initial response given by 8 participants when they experienced a occupational diseases or accident consisted of seven categories, namely: 1) Immediately cleaning body parts that were needles stik accidentr or exposed to patient body fluids 2) Taking a short break to relieve musculoskeletal pain such as lying down or asking a co-workers for help to do massage. 3) Ask co-workers for help when a occupational accident occurs. 4) Carry out laboratory tests for nurses and the patient. 5) Take the initiative to seek treatment from experts or let their back or knee pain heal on its own without taking any action. 6) Choose to report or not report work accidents to the Head of Room , Infection Prevention and Control (IPC) or OHS Team. The reason for not reporting was because the participants thought the amount of bodily fluid splash was only small, so they preferred to tell the incident to their co-workers and the doctor on duty in the room. 7) Choose to remain silent and not report co-workers who commit physical or verbal violence. 8) Ask for family help when receiving threats from the patient's companion.

Theme 5. Changes Felt by Nurses After Experiencing Occupational Diseases and Accident

The changes felt by 8 participants after experiencing occupational diseases or accidents were physical and mental changes, changes in behavior in the nurses themselves and their co-workers. 1)The physical changes felt by 5 participants were bleeding during occupational accident and worsening previous diseases. *"Nyeri pinggang, dulu saya pernah jatuh dari tangga dan langsung mengenai tukang ekor. Awalnya sakit hanya pada itu tetapi semenjak bekerja disini, namanya kerja kan capek. Nah sekarang baru terasa efeknya yang jatuh di tangga setelah bekerja itu sakitnya berasa. Padahal dulu waktu jatuh sakitnya hanya pada seminggu pertama"* (P4). Work was disrupted due to legs that had been swollen for a week due to being pinched by a 50 liter oxygen cylinder and difficulty moving extremities due to falling.

2) The mental changes felt by 5 participants were feelings of trauma, anxiety about the long-term effects of occupational diseases or accidents, anxiety when accompanying co-workers who often commit violence, anxiety waiting for lab results, anxiety waiting for the next medical check-up (MCU) schedule despite the results of the examination lab. after the incident shows negative results, feelings of relief after negative MCU results, feelings of fear of transmitting the disease to the family, and feelings of shame about telling friends or family about the incident.

3) Changes in behavior after experiencing a occupational accident were felt by 4 participants, namely: being more careful at work; pay more attention to the preparation of tools, materials and PPE; feel happy if the source of violence is absent; trying to consider verbal violence from co-workers as part of the job. *"Mau tidak mau pasti nanti kami merasakan hal-hal seperti di marahi, di katai yah tapi bagaimana lagi namanya juga pekerjaan jadi di terima saja"* (P3). 4) Changes in co-workers' behavior, such as reporting the incident to OHS Team because they are afraid of being infected.

Theme 6. Efforts to Prevent Occupational Diseases and Accidents by Nurses and Hospital Management

Preventing occupational diseases or accidents according to 9 participants must be sought by all hospital users. 1)The prevention efforts that participants have made so far are preparing themselves before work, such as: getting enough sleep, eating breakfast, taking vitamins, use PPE according to SOP, pay attention to procedures for disposing of used fluids, pay attention to actions on patients with infectious diseases, take turns with co-workers during CPR, no needle recapping, be careful at work, ask friends for help. Wash your hands after the procedure, stretching if you feel musculoskeletal pain, rest and drink water if you feel tired, making time to eat when it's not busy, provide a change of clothes,

take a shower immediately after finishing work. Report if you experience a work accident and take the initiative to seek treatment.

2) Two participants' efforts to prevent injury/disease transmission to patients and co-workers were: changing PPE before changing patients, calculate the use of gauze, needles and sewing thread and be careful when giving/passing tools during surgery. 3) Prevention efforts carried out by hospitals according to 7 participants include providing: PPE, Hospital Management Information System, ergonomic equipment, porters to assist with the process of transporting and evacuating patients, facilities for disposing of remaining patient body fluids, providing vitamins to staff, providing education and review OHS material during official operations, create a policy that drug preparation is carried out in the pharmacy, and limit access to isolation rooms.

Theme 7. Nurses Need Hospital Management Support to Maintain Their Occupational Health and Safety

Creating a safe environment for nurses requires the support of all parties, including the hospital. Currently, 2 participants are of the opinion that the hospital's efforts to maintain the safety of nurses are good by taking preventive measures and providing the necessary equipment. However, according to 8 participants, there are several other things that hospitals need to pay attention to regarding the hospital's efforts to maintain nurse safety, namely: adding staff, increasing the provision of PPE and providing education regarding PPE, changing equipment and PPE regularly, providing or adding space. Isolation, monitoring and controlling risks, providing facilities/equipment that comply with standards, providing a drug depot in the ICU/implementing a drug delivery system to the ICU, responding to reports of work accidents and eliminating the blaming culture. *"Bahkan kemarin ada juga yang tertusuk jarum akan tetapi malah mendapatkan peringatan sementara kita tidak tau yah kak akan mengalami hal tersebut. Makanya sekarang jika ada kejadian seperti itu mereka lebih memilih untuk tidak melaporkan dikarenakan dilaporkanpun bukannya mendapatkan pemeriksaan lebih lanjut justru mendapatkan peringatan "* (P6).

DISCUSSION

Various experiences and feelings when experiencing illness or injury due to work accidents make nurses realize that the implementation of Occupational Health and Safety (OHS) is very important in maintaining the safety of themselves, patients, nurses' families and maintaining productivity. Nurses feel the need to maintain personal safety while working because the profession as a nurse is a job that carries a higher risk of experiencing occupational diseases or accidents compared to other health workers. Previous research found that infectious, cerebro-cardiovascular and other diseases are more susceptible to nurses than doctors, dentists or other hospital staff ([An et al., 2020](#)). Implementing OHS is also important to prevent disease transmission from nurses to patients and nurses' families. Referring to the case of the spread of SARS CoV 2, it was found that the spread of the disease was not only from patients to health workers but could also be from health workers to patients and the public who interacted directly or indirectly with health workers ([Abbas et al., 2021](#)). Therefore, nurses feel it is important to implement OHS.

Hospital OHS Management has been implemented at the research location, but occupational diseases and accidents still occur among nurses. The phenomenon found in this research was that the data reported by nurses was only one occupational accident. Namun however after conducting in-depth interviews the researchers found that participants had experienced occupational diseases or accidents more than once. For example, a participant experienced being splashed with a patient's body fluids, back and hand pain when holding a baby for too long, back pain due to an unergonomic position when bathing the baby, slipping because the floor was slippery after bathing, and experienced verbal and physical violence from other health workers. Other nurses have experienced needle sticks incident and back pain when performing CPR. This figure is quite large if you consider that their work period is still relatively new, namely an average of two to four years.

Occupational diseases or accidents experienced by nurses in coastal and border areas have many similarities with previous research, but there are also several differences for example, feeling sad seeing the patient's condition. Feelings of sadness that arise as a result of overly sympathizing with the patient's condition can be categorized as compassion fatigue. Compassion fatigue, if not treated immediately, can contribute indirectly to increased depression in nurses ([Ma et al., 2022](#)). If this depression is not treated, it will affect nurse productivity.

Another example is that working as a nurse can make complaints of previous illnesses worse. As felt by one participant with a history of pain in the tailbone due to falling down the stairs 5 years before working as a nurse. The pain felt during the incident can heal itself after one week. However, one year after working as a nurse, a recurrence occurred and it became worse, especially if they experienced fatigue or after lifting heavy objects (equipment for receiving new born babies). Previous literature states that acute lower back pain usually has a good prognosis, however cases of recurrence are quite common ([Hidayati, 2022](#)). This recurrence can be caused by incorrect body posture when doing activities or lifting heavy objects ([RSUP dr. Soeradji Tirtonegoro Klaten, 2022](#)).

Another example is physical and verbal violence from co-workers, whether from nurses or other health workers, which was reported by participants in the Out Patient Dept and Perinatology Wards. The results of this study are in line with previous research that the units with the highest exposure to violence from co-workers came from the Outpatient/External Consultation Room, Surgery, Mental Health, Maternal and Child Care, Emergency Unit, and Internal Medicine ([Alves et al., 2021](#)). The reason for this violence is dissatisfaction with the performance of nurses, such as procedures that are carried out for a long time or are not appropriate, different thoughts which then lead to rude, degrading comments and even physical violence in the form of throwing objects at nurses.

Another phenomenon that researchers found was that the average number of reports received was data on work accidents involving needle stick injury or being splashed with patient body fluids, while data on occupational diseases was rarely reported. This can happen because occupational accidents can be detected when they occur and their causes, whereas occupational diseases cannot be directly ascertained whether the cause originates from the hospital or activities outside the hospital. Apart from that, based on the results of interviews with several participants, it was found that they chose not to report occupational diseases or accidents they experienced to the head of the room, the OHS team or IPC because they considered the injury or illness incident to be less important, having experience that their reports were sometimes not responded to by management and a blaming culture. The culture of blaming workers when work accident occur must be eliminated by managers because it can cause psychological stress and trauma to nurses, decrease nurses' willingness to report errors and increase turnover ([Okpala, 2020](#)). If this happens continuously then nurse managers will experience difficulties in creating OHS risk management for nurses.

One of the occupational diseases that is not reported is violence from co-workers, whether from nurses or other health workers. This is due to feelings of reluctance and fear to report colleagues because of their higher position, the nurse leader did not dare to reprimand the reported person, and there is a perception that violence is part of the risks of the job so it does not need to be reported. Previous research similarly suggests that violence between co-workers occurs when organizations allow, ignore, or reward such behaviour and leaders minimize complaints ([Alves et al., 2021](#)). This shows that managers have an important role in the occurrence of violence between co-workers and should have the ability to mediate this violence problem.

Occupational diseases and accidents occur due to Unsafe act and conditions. Unsafe act can originate from the nurses themselves or co-workers. For example, a participant does not work according to procedures in the operating room, causing exposure to patient body fluids. Another study [Risanti et al. \(2021\)](#) found that nurses' compliance with the implementation of the Surgical Safety Checklist in the Central Surgical Installation was influenced by the nurses' motivation, attitude and knowledge. This Surgical Safety Checklist is important to reduce the very high number of occupational accidents in the operating room. Another unsafe act is that a participant works in two different hospitals. This condition must be of concern to managers because working hours that exceed productive working hours can cause

nurses to feel tired, lack of concentration and stress which can result in negligence while working ([Sofiantika & Susilo, 2020](#)). Another unsafe act is that nurses force themselves to work even though they are sick (presenteeism). Other research related to presenteeism found that nurses often force themselves to come to work even though they are sick or less productive due to workload considerations, the leave system, feelings of guilt, and financial needs ([Shan et al., 2021](#)). Feelings of guilt and not wanting to increase the workload on co-workers made one of the participants who were needle stick injury while treating a COVID-19 patient, choose to wait to take off his hazmat suit and clean the wound until after duty hours. So, unsafe act is sometimes carried out by nurses consciously because of certain conditions.

Unsafe conditions that cause occupational diseases or accidents, such as increased workload due to additional tasks (accreditation committee), poor communication with other health workers, making them susceptible to verbal and physical violence and work duration. The results of this study found that musculoskeletal disorders are usually felt by nurses during night duty, while needle stick injuries usually occur during day duty or at the end of the second night duty. This is because the duration of night duty is longer and heavy nursing activities such as bathing patients and changing bed sheets cause nurses to feel tired and therefore less focused on work. The difference found with previous research [Alfulayw et al. \(2021\)](#) is that most needle stick injuries usually occur in the morning shift (68%), then the night shift (23.2%) and the afternoon shift (8.8%). This is because there are usually more activities during morning service.

Nurses in this study reported changes that occurred after experiencing occupational diseases and accidents. One of them is psychological discomfort in the form of feelings of trauma due to the verbal or physical violence experienced, feelings of anxiety, fear and shame if a disease is infected or the disease is transmitted to the family. Violence in the workplace must be a concern for nurse managers because violence in the workplace will directly and indirectly affect the performance of health workers. In fact, according to [Alves et al. \(2021\)](#) experiences of violence can cause stress and have a negative impact on psychological health, causing nurses to consider leaving their jobs and having a negative impact on patient care and attention if they continue to work. This is due to several factors ([Rasool et al., 2020](#)). First, harassment reduces the morale of health workers, which consistently reduces performance. Second, mobbing (intimidation) in the workplace reduces productivity, increases levels of stress, anxiety, depression and irritability, decreases work engagement, attendance and destroys work. Third, workplace ostracism reduces motivation among workers and organizations, which reduces work efficiency. Fourth, work stress is considered a stigma among health workers who face stress at work.

Aware of the impact and causes of occupational diseases or accidents, both nurses and hospitals try to prevent or minimize potential dangers. The efforts made by participants include physical, mental preparation, knowledge and skills before working. Even when working, they try to work according to procedures and implement safe behavior. However, to cultivate safe behavior at work, support from the hospital is needed in the form of giving rewards and incentives to staff who implement safe behavior at work ([Restuputri et al., 2024](#)). Apart from safe behavior, creating a safe work environment is also very important. Creating a safe work environment for nurses requires the support of all parties, starting from patients, patient companions, hospital staff and hospital managers. This is because patients, patient companions or hospital staff are hazard for nurses, while hospitals have a role in providing a safe Occupational Health and Safety Management for nurses. Participants in this study realized that the hospital had made efforts to minimize the potential dangers of risks for nurses, but there were still things that needed to be improved. For example: increasing the number of personnel, providing education regarding PPE, equipment maintenance, providing facilities according to standards, risk management, responding to incoming reports and eliminating blaming culture. Overall, hospitals and nurse managers have made efforts to maintain the safety of nurses, but have not been fully implemented properly. Therefore, in creating a safe work environment, it is very important to build commitment from all hospital residents and also involve nurses in identifying risks of hazard to nurses in the hospital, so that risk management can be implemented properly.

CONCLUSION

Although this research focuses primarily on nurses who have experienced occupational diseases or accidents in coastal and border areas, the results found in this research are only slightly different from previous research. This research found that nurses who work in hospitals have experienced more than one type of occupational disease or accident during their two to four years of work. However, the problem is that there are still some nurses who do not report the injuries they experience for various reasons. So occupational diseases or accidents are still like an iceberg phenomenon for managers.

The causes of occupational diseases or accidents in nurses are: negligence of the nurses themselves, co-workers, patients and patient companions, excessive workload, inadequate facilities, and an unsafe work environment. There are two types of effects. The positive effect is that nurses are more careful when working, while the negative effect is temporary or long-term physical and psychological discomfort which can affect nurses' work productivity. To prevent similar incidents from occurring, nurses have made several efforts such as being more concerned with personal safety, increasing their personal knowledge and skills, as well as working according to procedures and behaving safely. However, nurses realize that if they want to create a safe work environment, they really need support from all hospital residents and also the hospital. Because hospital management and all hospital residents must be committed to implementing OSH management in the hospital environment. Suggestions for future researchers are to examine the experiences of nurses who have experienced occupational diseases or accidents in primary health facilities in remote areas.

ACKNOWLEDGEMENT

We would like to convey our appreciation to the Faculty of Health Sciences and Universitas Borneo Tarakan for financial support, mentorship, and access to the research location.

DATA AVAILABILITY

Data are available upon request to the authors to support patient privacy.

ETHICAL STATEMENT

The ethical statement for this study is No. 145/KEP/VI/2023 from the Universitas Borneo Tarakan Ethical Committee.

AUTHOR CONTRIBUTIONS

Rahma Yulis (RY), Gusni Fitri (GF), Fitriani (F)

Conceptualization (RY, GF, F)

Methodology (RY, GF)

Data curation, Writing- Original draft preparation (RY, F),

Visualization, Reviewing, and Editing (RY, GF, F)

All authors approved the final version of the manuscript.

FUNDING

This study received funding from Universitas Borneo Tarakan

CONFLICT OF INTEREST

The authors declare no conflict of interest in this study

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