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Pressure Ulcers in Bahrain Hospitals: A Point Prevalence Study

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ABSTRACT

Background: *Assessing the prevalence of pressure ulcers is widely used as a clinical indicator for the standard of care in the Western countries. Unfortunately, there is very little relevant information available in Bahrain. This cross-sectional descriptive study was used to determine a baseline as foundation for further research.*

Objectives: *This study investigated the point prevalence of pressure ulcers in acute care settings in Bahrain where is currently an incremental gap with regards to both, information about the frequency and the quality of sustained care pertaining to the occurrence of pressure ulcers. This research was conducted in order to develop a practical framework for assisting nursing practitioners in developing preventive measures of pressure ulcers care.*

Methodology: *The study sample included qualified nurses working in four general hospitals who had completed inspection of the skin on their patients. Pediatric, maternity, emergency department, day care and psychiatric unit patients were excluded. Questionnaires were delivered to participating nurses in accordance with the European pressure ulcer advisory panel framework.*

Results: *Results indicated that the prevalence of pressure ulcers (grade1-4) was 16%. The sacrum and heels were the most affected sites. Sixty-four percent of patients were admitted without any evidence of a risk assessment being undertaken which demonstrated that there is a need to ensure that nurses are better trained to deal with the prevention of pressure ulcers.*

Conclusion: *A unique aggregated framework and a series of guidelines were formulated to serve as a benchmark for future practice which nursing practitioners in Bahrain may implement as part of routine care to their patients.*

Keywords

Pressure Ulcer, Bed Sore, Risk assessment tool, Avoidable pressure, Enhanced patient care, Prevention of pressure ulcer, Prevalence of pressure ulcers.

Introduction

Pressure ulcers are recognized internationally as iatrogenic or acquired injuries of the skin and underlying tissues. Hospital-acquired pressure ulcers, particularly severe ulcers, are expensive to treat and may require prolonged hospitalization [1-3].

Any wound has the potential to develop complications which compromise patient safety and increases hospital costs [4], and, in most cases, are seen as an avoidable adverse event [5]. They are also seen as clinical indicators of the standard of care provided [6,7].

A point prevalence is the proportion of all cases of a condition among a population considered at risk for developing that condition at one point in time [8]. In contrast, prevalence is defined as the number of persons with a pressure ulcer as a proportion of the entire population, measured at a specific point in time or over a specific period of time [9].

Point prevalence is also an indicator of the extent of a particular health problem on a set day. Identifying a point prevalence can

provide useful information about the magnitude of a health problem [8]. Measuring prevalence of pressure ulcers has been shown to have important implications for basic nursing and quality control [10]. Several prevalence and incidence studies have been conducted internationally [11-14], but there is a scantiness of research on pressure ulcers in the Arab world in general and in Bahrain specifically [15].

Pressure ulcers have been a global problem for nursing and health care professionals throughout time. Pressure ulcers defined by European Pressure Ulcer Advisory Panel (EPUAP) and in UK National UK National Pressure Ulcer Advisory Panel (NPUAP) as a "localized injury to the skin and/or underlying tissue usually over a boney prominence, as a result of pressure, or pressure in combination with shear force". The severity of pressure ulcer is classified into four stages. Thus, it may range from the early stage (stage1) as a localized erythema (redness) of an intact skin to the worst stage (stage IV) which involves full thickness of tissue loss with exposed bone, tendon or muscle [2].

Furthermore, pressure ulcer has a negative impact on patients, health care professionals and health care organizations. Patients who develop pressure ulcer often suffer from pain and prolonged hospitalization as well as increased risk of wound infection, sepsis and associated morbidity and mortality. The treatment of pressure ulcer increases the workload on health care provider and is associated with increased cost of treatment in the UK [15].

There are several risk factors associated with the development of pressure ulcers, including old age and limited mobility, such as patient with neurological illness or spinal cord injury [19]. Also, patients with altered level of consciousness, such as sedated patients in intensive care unit, are at more risk to develop pressure ulcers. Patients with incontinence, poor nutritional status or with obesity are at high risk of pressure ulcers. Moreover, the use of unsuitable equipment to relief pressure such as seat cushion and bed mattress is another risk factor [3].

The presence or absence of pressure ulcers has been considered as an indicator of quality of nursing care particularly and health care generally [17]. In health care settings in Bahrain particularly and in Arab countries generally, pressure ulcer prevalence studies are scarce. However, pressure ulcer prevalence studies have been conducted and replicated widely throughout time on the international level [18].

Aim of the study

The aim of the research was to measure the baseline prevalence of pressure ulcer in Bahrain acute health settings and identify the gaps in pressure area care practice that can improve upon patient care and reduce the risk of further pressure ulcers developing amongst patient.

Specific objectives

The main objectives for conducting this study were:

- To quantify and establish baseline prevalence data of pressure ulcers in acute health care facilities in Bahrain, including severity, number and stage of ulcers.
- To identify pressure ulcer risk assessment tools in use.
- To identify patient populations at highest risk of pressure ulcer development.
- To identify whether further nursing training/education in pressure ulcers risk assessment, prevention and treatment needs to be implemented.
- To evaluate the current preventive measures used in hospitals.
- To search for enhancing techniques to rejuvenate and invigorate the preventative measures process.

Significance of the study

It is vital to have quality evidence when advocating the rights of patients with wounds. The prime reasons for conducting this study was to provide a baseline data on the prevalence and point prevalence of pressure ulcers in Bahraini hospitals, encountering numerous underlying factors such as severity, location, number, stage of ulcers. Moreover, the study was to evaluate the preventive measures used in hospitals and looked for enhancing techniques to rejuvenate and invigorate the preventative measures process. Thus providing more effective care and treatment for the patient will support the pressure ulcer prevention practice and improve the quality of care.

The potential benefits of conducting a pressure ulcer study were:

- To initiate a pressure ulcers benchmark baseline.
- To foster a critical review of current pressure ulcer in patients (?)
- To provide valuable data for improvement in the quality of pressure area care.
- To assist in establishing clinical priorities in the health planning setting relating to skin care and pressure ulcers prevention.
- To improve the documentation of pressure ulcer risk assessment and management.
- To improve availability of pressure relieving devices.
- To reduce cost of pressure ulcers in hospitals.

Inclusion and exclusion criteria

Inclusion - All consenting adult patients admitted on the period of the prevalence study were included in the study and represented the study sample.

Exclusion - Paediatric, Maternity, Psychiatric patients, and patients admitted to the emergency department were excluded from the study. Usually pressure ulcers are not often observed in patients admitted to theses wards.

Sampling technique

All patients admitted to four general hospitals in Bahrain within a 24 hours time frame were invited to participate in this research.

Methodology and Study design

This study was conducted using a cross sectional, descriptive, quantitative approach. The study has comprised of a survey on pressure ulcer prevalence which was conducted for one day in July 2013 in four across acute care facilities in Bahrain.

Participated nurses admitted patients before midnight on that day and who were older than 18 years were invited to participate. The duration of data collection was 24 hours between the hours of 12:00 midnight -12.00 midnight of the following night for all eligible hospital patients who were under participative nurses care were willing to participate. The branching elements that nurses were extracted from the survey were patient gender, age, pressure ulcers risk assessment scale on admission, PU Preventive measures, presence of PU, the number of ulcers per patient, ulcer anatomical location and stage were assessed subsequently.

Procedure

Hospital Permission

Permission for conducting the study was granted at different levels of the participating hospitals, including the nursing administration and hospital management, research committees, and ward managers. The head of nurses were assured the results of this survey would not be taken as quality judgment.

The survey results will establish a benchmark for future audit in and beyond and reinforce the importance of assessing the PU risk and the importance of preventive measures and quality of care regardless of the hospital unit. An ongoing progressive survey will help to obtain benchmark quality improvement and ensure the information is warranted and of recognizable value.

Ethical Approval

The study was approved by the research Ethics committee of all hospitals and was conducted in accordance with the principles guiding research, including those of the world medical association declaration of Helsinki (2000). The procedure was also approved by the medical ethical committee of the Medical University in Bahrain.

Training for research staff

For the aim of data collection, a team of nurses were trained from each participating hospital. A total number of 18 trained nurses collected data on the units over a full 24 hours. The training included general background about pressure ulcers, identifying and staging pressure ulcers according to the EPUAP grading system [2]. Also, the training included a full guideline explaining the protocol of the study and training to complete the data collection instrument. The principal investigator explained fully the aim of the survey and issues associated with confidentiality and anonymity protection.

The nursing teams included hospital‘s wound clinicians, supervisors, and head of nurses. Clinicians were carefully selected and received two hours of training. The data collection instrument, such as the definition of pressure ulcer risk assessment tool and stages of pressure ulcer pictures were provided during training to identify the correct stages of pressure ulcer and ensured that obtained results were valid. At the end of the training, trainees were encouraged to ask questions. Additional sessions were conducted on each ward/unit level to explain and familiarize the nature of the survey and to enable data collectors to request assistance and cooperation in the activity.

Patient Consent

All patients admitted from 12 midnight until midnight on the day of the survey were invited to participate for all units of different specialties. Patient who were older than 18 years and agreed to give consent were included in the study.

Patients who were willing to participate in data collection had been contacted and researcher explained their right to withdraw at any time from study even following consenting. Potential benefits of updating the nurse’s participant’s knowledge by providing the accurate answers after data collection was explained and offered. Sign of pressure ulcer screening was carried out by hospital trained nurses one nurse filling the questionnaire and the other doing the skin assessment.

Each patient or relative had been asked to consent to participate in the survey .The right to withdraw from the study at any stage assured.

Materials

The information sheet and consent forms were provided both in Arabic and in English. These were provided with the questionnaires and explained what the study was about, confidentiality issues, and if the patient provides consent to completing the study, then they may proceed to completing the survey.

The principle investigator translated the survey’s documents, questionnaires, information sheets and consent forms from English to Arabic. The documents provided obtained from all patients or next of kin, and conformed to the ethics code of practice, ensuring that their anonymity is not compromised.

The questionnaires were anonymous, only demographic details and inspection of patient skin for the sign of pressure ulcer had been carried out by hospital trained nurses. The questionnaire had been circulated to the qualified nominated staff who involved in this survey and then completed questionnaires been placed in a locked and sealed box, which only accessible by the principal investigator.

Data management and analysis plan:

All responses were entered in a Microsoft Excel sheet prior to being imported to SPSS Version 18 data analysis for the descriptive statistics of the study sample, including Mean median, range and analysis of Variance. All statistical tests were carried out at a significance level of 5%.

Results

Demographics

Fifty-four male (54%) and 37 female patients (45%) agreed to participate in this research. Conforming to the including criteria (Figure 1), mainly medical surgical patients (Figure 9).

PU Prevalence

The prevalence rate of pressure ulcers (Grade 1-4) in this study was 16%. Number of pressure ulcers refers to key findings of PU

rate in Bahrain hospitals (Figure 2). Most affected sites of pressure ulcers across the four hospitals were sacrum and heels area (Figure 4). Fifty-two patients (33%) developed stage 1 pressure ulcers and 50 patients (32%) stage 2 pressure ulcers (Figure 5).

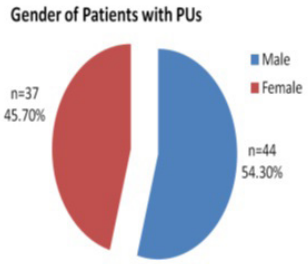


Figure 1

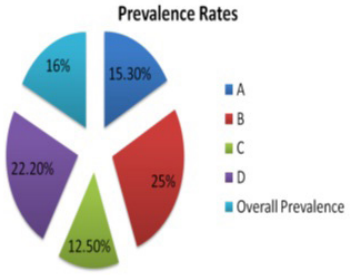
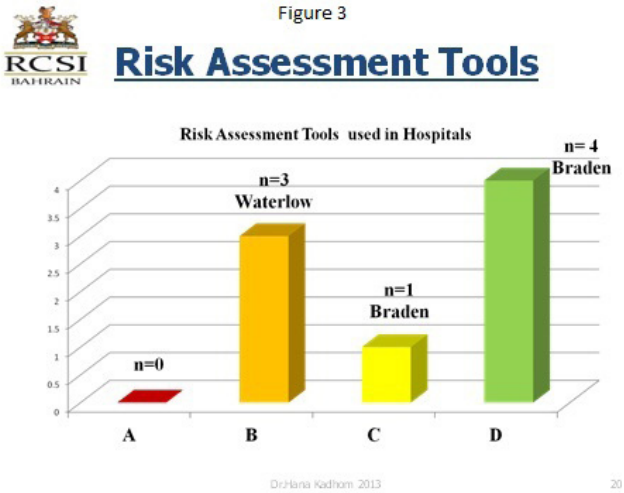


Figure 2

Figure 3



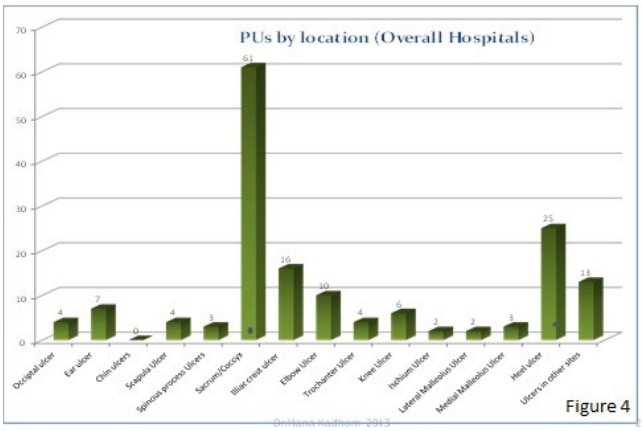
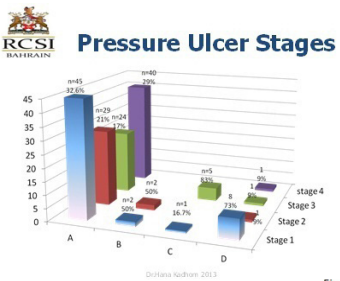


Figure 4



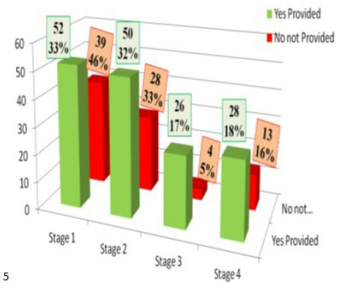


Figure 5

Percentage of Patients with One PU to Patients with Multiple PUs

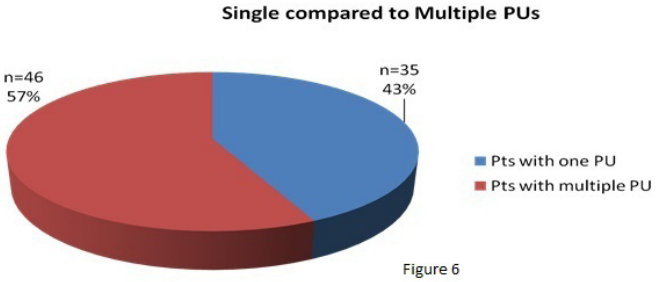


Figure 6

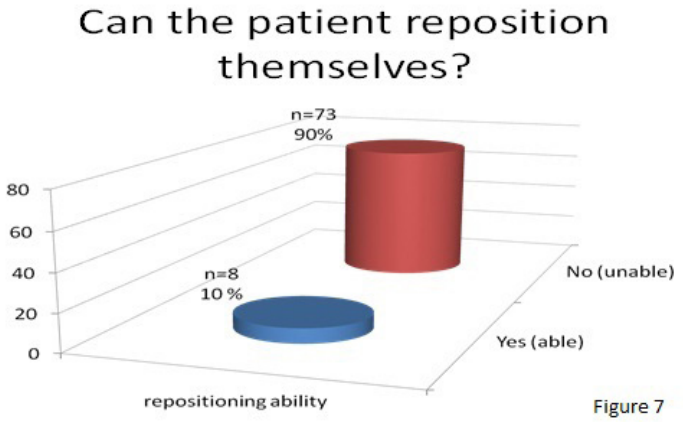
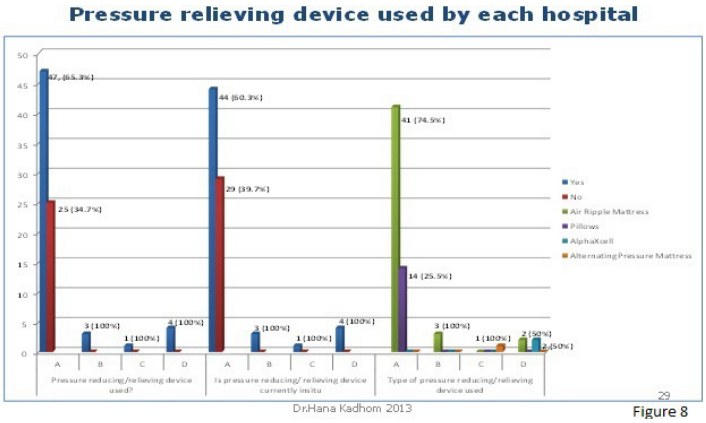


Figure 7



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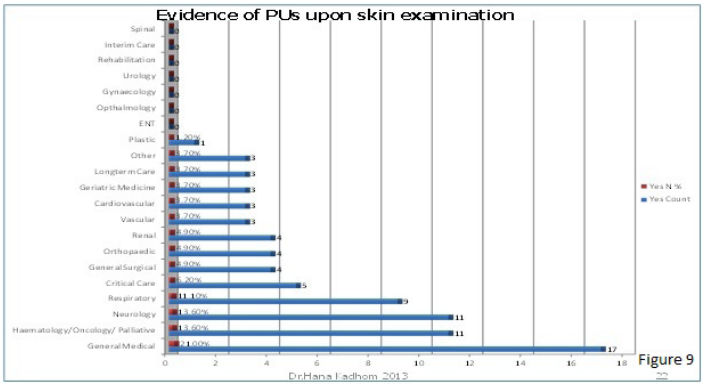

Figure 9

Pressure ulcers risk assessment

Participating nurses indicated that only seven patients (9%) were able to independently reposition themselves. Majority of patients at risk of pressure ulcers (N = 60, 73%) were unable to reposition themselves and needed nurse's assistance for turning and repositioning (Figure 6).

Available PU risk assessment tools

Participating nurses indicated that there was no clear evidence of pressure ulcers risk assessment documents on patient admission. When asked whether they had risk assessment tool available to assess patients on admission, most nurses (N = 18, 90%) (16.2) were not aware of the pressure ulcers risk assessment tool. Only 2 nurses (10%) were aware and indicated that the documentation are in use to assess patient at risk of pressure ulcers on admission (Figure 3). It seems that there is not much evidence of using risk assessment during the first day of patient admission across the four hospitals. One participating hospital used a different risk assessment tool, the Waterloo pressure ulcers risk assessment scale [4,17], but also Braden [2], that tool was also used at another participating hospital, but not consistently across the same hospital's units.

There was also no consisted use and type of relieving devices across hospitals. Hospital A patient number was using ripple matters 74.5% (n=41), hospital B 100% (n=3), hospital D 50% (n=2). Other relieving devices were also in use to relieve the pressure such as pillows. Only hospital C used alternating pressure mattresses in addition to the other relieving devices (Figures 6 and 7).

Discussion

Pressure ulcer(s) can be costly [1-3]. The first steps to collect data for benchmarking specific clinical practice is through the use of prevalence studies [7,12,10,15]. The best quality of care indicator in hospital is pressure ulcers [12]. The point prevalence of pressure ulcers found in this study of 16% was higher than previously reported rates [17]. Prevalence rate was higher than in Jordan and lower then Belgium, Italy Canada, Portugal and Sweden [10,15].

Patient demographic

Gender

Half of patient who developed pressure ulcer(s) were male 54.30%. This finding is consistent with previous research [7]. However, the female pressure ulcer was not compatible across all prevalence and incidence studies that have reported a predominance of pressure ulcer development in women [6].

Age

The average age of patients with pressure ulcer(s) was 69 years. The correlation between age and developing pressure ulcer prevalence is compatible result with previous studies [17].

Risk assessment

Early recognition of patients at risk of developing pressure ulcer(s) is an essential part of prevention [19]. The assessment tool and early skin inspection for pressure ulcer(s) and implementation of management strategies have the potential to enhance patient care and to reduce pressure ulcer development and prevent further damage to the skin. It appeared that in one hospital they used different risk assessment tools have been used across the acute setting in Bahrain. Nurses need to be more aware of the benefit of risk assessment tool on admission and frequent use of the assessment according to patient needs until discharging patient from the acute setting [2,8].

Risk assessment with a validated tool should be performed on admission to hospital and at the daily basis until patients discharge from hospital. Any skin damage should trigger a re-evaluation of preventive strategies.

The study indicated that prevalence of developed pressure ulcer(s) was high in general medical wards patients (Graph 9). This indicates that patients need to be assessed on admission to prevent multiple pressure ulcers and complications [3,6,13,15,18].

Pressure relieving device

Pressure relieving devices across 4 hospitals were varied. Nurses need to improve knowledge and attitude for providing the correct relieving device for pressure ulcer prevention to patient at risk of pressure ulcers [7,9].

Recommendation

Implications of this research relate to the following recommendations:

- Implement educational programs for the prevention of pressure ulcers that are structured, organized, comprehensive, and directed to all levels of nurses, health care providers, patients family, and caregivers
- Make the right choice and standardize the risk assessment tool
- Assess whether all areas of risk are addressed within the care plan
- Provide pressure relieving devices
- Provide advanced pressure ulcer(s) specialized training
- Introduce tissue viability nurse and wound care coordinator
- Review pressure ulcer(s) prevention and management policy and procedure
- Implement standardized prevention and treatment strategies
- Foster collaboration with nurses in implementing pressure ulcer(s)
- Monitor and evaluate intervention regularly
- Reward and recognize nursing professionals for achieving goals

Conclusion

Benchmarking is the best tool that help health care professionals to measure and identify in consistence in patient care practice, through the use of benchmarking practice gaps can be identified, process can be put into practice, and improved patient outcomes can be monitored and maintained.

This study provides a base line prevalence rate in acute care settings in Bahrain. A comparison with other previous studies was demonstrated, while evidence of findings of the existing situation,

benchmark quality improvement and ensure the information is warranted and of recognizable value. Results indicate more care and attention to train nurses in assessment and prevention of pressure ulcers is needed in Bahrain.

The main concern is the risk assessment nurses knowledge and the use of preventive care to patients at risk of pressure ulcers development. The study will be repeated one and a half year.

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