ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCES

SCHOOL OF ALLIED HEALTH SCIENCES

DEPARTMENT OF NURSING AND MIDWIFERY

ASSESSMENT OF NURSES' KNOWLEDGE, ATTITUDE AND PERCEIVED BARRIERS TO EXPRESSED PRESSURE ULCER PREVENTION PRACTICE IN ADDIS ABABA GOVERNMENT HOSPITALS, ADDIS ABABA, ETHIOPIA, 2015

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June, 2015

Addis Ababa, Ethiopia

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Approval by the Board of Examiners

This thesis by Abebe Dilie is accepted by the Board of Examiners as satisfying thesis requirement for the Degree of Master of Science in Adult Health Nursing.

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Acronyms and Abbreviations

AAU- Addis Ababa University

EPUAP- European Pressure Ulcer Advisory Panel

FMOH – Federal Ministry of Health

ICU- Intensive Care Unit

NPUAP – National Pressure Ulcer Advisory Panel

PPC- Progressive Patient Care

PAS- Proportional Allocation to Size

PU-Pressure Ulcer

SPSS- Statistical Package for Social Sciences

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Abstract

Background: Although pressure ulcer development is now generally considered as an indicator for quality of nursing care, questions and concerns about situations in which they are unavoidable remain. Awareness about the significance of the problem, positive attitude towards prevention and an adequate level of knowledge are cornerstones to effectively prevent pressure ulcers.

Objective: To assess nurses' knowledge, attitudes and perceived barriers to expressed pressure ulcer prevention practice in Addis Ababa government hospitals, Ethiopia, 2015

Methods and materials: Institution based cross sectional study was conducted from April to May, 2015. Three hospitals were selected by simple random sampling from 12 government hospitals and 217 eligible nurses were selected by using simple random sampling (SRS) after nurses were proportionally allocated to size from each selected hospital. Data were collected through pretested self administered structured questionnaire. Both descriptive and inferential statistics were used to present the data.

Results: Among the respondents, 61.2% were found to have adequate knowledge regarding pressure ulcer prevention practice whereas 68.4% of the participants had favorable attitude to pressure ulcer prevention practice. Moreover, 67.3% of the participants had good practice about pressure ulcer prevention. The most reported barriers to practice pressure ulcer prevention were unproportionate nurse to patient ratio (67.9%), lack of training and education (56.1%), shortage of equipment (53.6%) and lack of job satisfaction (64.3%).

Conclusion and Recommendation: More than half of the nurses were found to have adequate knowledge about pressure ulcer prevention and their outlook towards it remain majorly favorable. Expressed pressure ulcer prevention practice was affected by the participant's level of knowledge, attitude and barriers of care. To provide effective prevention of pressure ulcer, nurses' level of knowledge and attitude should be enhanced besides resolving these barriers.

Key words: nurses, Pressure ulcer, prevention, knowledge, attitude, perceived barriers

1. Introduction

1.1 Back ground of the study

Pressure ulcer is defined by the National Pressure Ulcer Advisory Panel (NPUAP) and European Pressure Ulcer Advisory Panel (EPUAP) as “localized injury to the skin and/or underlying tissue usually over a bony prominence as a result of pressure, or pressure in combination with shear and/or friction”. People most at risk of pressure ulcers are those with a medical condition that limits their ability to change positions, requires them to use a wheelchair or confines them to a bed for a long time (1).

According to the International NPUAP- EPUAP Pressure Ulcer Classification System pressure ulcer has 4 stages based on the level of tissue damage. Category/Stage I pressure ulcer is Non-blanchable redness of intact skin while Category /Stage II pressure ulcer has partial thickness dermal loss or blister presenting a shallow open ulcer. Moreover, Category/Stage III is manifested as full thickness skin loss with or without a cavity or slough. Category/Stage IV is a full thickness dermal loss exposing underling structures such as bone or muscle (1, 2).

World stop pressure ulcer day report in 2014 showed that nearly 700,000 patients were affected by pressure ulcers each year. Around 186, 617 patients develop a new pressure ulcer in acute care each year. This has shown that in the year January 2012 to December 2013 between 4-6% of patients in acute care settings and more than 5-10% of patients in non-acute care had pressure ulcers. Pressure ulcers are accountable for 2% of preventable deaths (3).

A study that was conducted in Felegehiwot Referral Hospital, Bahir Dar, Ethiopia on hospitalized patients to assess prevalence and associated factors of pressure ulcer revealed that 16.8% of them had pressure ulcer (4).

One large cross-sectional study regarding pressure ulcer and its associated pain revealed that 12% of patients had constant pain and 54% had occasional or treatment related pain. It also indicated that 20% of patients had pain for less than one hour daily and 55% experienced pain at rest (5).

Pressure ulcers result when increased pressure exceeds the local capillary pressure. Depending on patient's severity of illness, less pressure may be adequate enough to obstruct capillary blood flow and can result decreased oxygen delivery to tissues and as a result pressure ulcers can develop within 2 to 6 hours. If patients who are at risk of pressure ulcer are identified, effective measures will be taken to prevent its occurrence (6).

Therefore, preventing pressure ulcer is part of progressive patient care (PPC), which is giving care according to the need with minimum expenditure. Such a care is beneficial for the patient, health professional as well as the organization at large (7).

1.2 Statement of the problem

According to 2014 Coloplast pressure ulcer summit report, 60,000 people died as a result of the complications of pressure ulcer globally (8). Within the national context, studies that aim to investigate nurses' knowledge, attitude and perceived barriers towards pressure ulcer prevention practice have not been conducted or could not be found.

There are several factors contributed for the development of pressure ulcers. These included prior ulcers, peripheral vascular diseases, diabetic mellitus, smoking , prolonged immobility, poor nutritional status, incontinency, impaired sensation, and aging as intrinsic factors and pressure, shear, friction, moisture, poor moving and handling as well as therapeutic devices as extrinsic factors. Nurses' knowledge and attitude are also viewed as extrinsic factors for pressure ulcer formation (9).

Nurses still showed poor compliance with the clinical guidelines regarding pressure ulcer prevention practice and put low priority on pressure ulcer prevention. Lack of knowledge is an apparent barrier for using the guidelines in clinical practice(10). In Jordan, the majority (73%) of nurses had inadequate knowledge about pressure ulcer prevention. Increased knowledge about pressure ulcer prevention among nurses not only improves the practice of pressure ulcer care but also reduces hospital stay (11). One study in Bahir Dar(Northwest Ethiopia) revealed the prevalence of pressure ulcer was 16.8% ; this emphasized the need to enhance the knowledge and attitude of nurses regarding pressure ulcer prevention practice (4).

The attitude of nurses towards pressure ulcer prevention refers to their value related to risk assessment, maintaining healthy skin, management of mechanical loads, education for patient and family (9). Attitude is learned and is affected by knowledge and behavioral intent. It is

used to express positive or negative feelings about a person, issue or object. If a person holds a positive attitude toward an issue, this will increase the possibility of performing a supportive behavior related to that issue, and vice versa (12).

If pressure ulcers occurred, it can cause decreased quality of life, infection, pain and disfigurement, alteration to sleep, delayed healing, increased morbidity and mortality rates, an increased need for intensive nursing and medical care, an increased workload for healthcare workers and, as a consequence, increased healthcare costs (1). A patient with pressure ulcer has a mortality risk that is 2 to 6 times greater than a patient with intact skin(13). Despite its devastating effects 95% of pressure ulcer can be prevented by managing both intrinsic and extrinsic risk factors as well as repositioning (14).

Although pressure ulcer development is now generally considered as an indicator for quality of nursing care, questions and concerns about situations in which they are unavoidable remain(15). However, Pressure ulcers are largely preventable. For all patients who are identified as being at risk should have a management plan to prevent development of pressure ulcer, optimize healing and prevent complications of existing pressure ulcer (7). Even though nurses make prevention as part of their routine, there are some barriers to practice and care planning such as inadequate time, inconsistent documentation, lack of staff, lack of equipment and lack of pressure ulcer related knowledge (9).

Awareness about the significance of the problem, positive attitude towards prevention and an adequate level of knowledge are cornerstones to effectively prevent pressure ulcers(16).

The purpose of this study is assessing knowledge gaps, attitudes and identifying perceived barriers of nurses working in Addis Ababa government hospitals.

1.3 Significance of the study

Pressure ulcers remain a significant and complex health problem in hospitals in terms of human suffering, tissue necrosis, pain, septicemia, disfigurement, loss of productivity, and financial burden (17). Therefore, assessing nurses' knowledge gaps and attitudes as well as identifying the perceived barriers to prevent pressure ulcers will benefit:

Nurse Clinicians: these practitioners are able to identify their knowledge and attitude level to prevent pressure ulcer, hence they focus on the betterment of care giving towards alleviating pressure ulcers.

Patients: when nurses identified and tried to fill their knowledge and attitude gaps to prevent pressure ulcer, patients also get qualified nursing care like maintained skin integrity throughout hospital stay.

Health Service managers: able to identify the barriers of care to prevent pressure ulcer and minimize this perceived barriers as much as possible.

Nurse Educators: to consider more evidence related contents regarding pressure ulcer prevention to their students.

Researchers: since only the prevalence of pressure ulcer was studied in Ethiopia, this study will act as an input for further study.

Policy makers: the study can be used as a baseline to develop guideline on pressure ulcer prevention for admitted patients.

2. Literature Review

2.1 Introduction

Pressure ulcer is a localized injury to the skin and/or underlying tissue, usually over a bony prominence, as a result of pressure, or pressure in combination with shear. A number of contributing or confounding factors are associated with pressure ulcers; the significance of these is yet to be elucidated (1).

International studies indicated a wide range of pressure ulcer prevalence, related to the care setting and types of patients. In Australia, one estimate of pressure ulcer prevalence in acute and sub-acute health care facilities ranged from 5.6% to 48.4% (mean 25.5%) and estimates in acute care facilities ranged from 4.5% to 36.7% (5).

The incidence and prevalence of pressure ulcers in acute care facilities and countries vary. International health care publications reported incidence rates of 1% to 11% and prevalence rates of 3% to 22% in hospitalized patients. The rates were higher in critical care patients (incidence 5.2%-20% and prevalence 14.4% (18).

A pilot study conducted among 25 hospitals in five European countries to determine the prevalence of pressure ulcer and the result revealed that the prevalence of pressure ulcer (grade 1-4) was 18.1% and when grade 1 ulcers were excluded, it was 10.5%. The sacrum and heels were the most affected locations. Only 9.7% of the patients in need of prevention received fully adequate preventive care (19).

A study in Germany from 2005 to 2011 on prevalence of pressure ulcers in hospitalized patients showed that the total number of cases hospitalized with the primarily diagnosis of pressure ulcer were 26.5% and 71.8% were other cases having the additional diagnosis of pressure ulcer (20).

A Chinese study indicated that the prevalence of pressure ulcer was 1.58% and hospital acquired pressure ulcer incidence was 0.63%. Intensive care unit (ICU) was the most severe (2.74 %) department in pressure ulcer and hospital-acquired pressure ulcer (21).

Sometimes, up to 95% of people with spinal cord injury had experienced pressure ulcer during their lifetime. The result of a cross sectional survey on people with paraplegia living in Japan showed 85.7% had experienced pressure ulcers and 46.3% had undergone multiple surgical procedures for ulcer treatment. The complication rates of persons with spinal cord injury with pressure ulcers who have surgery are very high (22).

2.2 Knowledge and expressed practice to pressure ulcer prevention

A risk factor is any factor that either contributes to increased exposure of the skin to excessive pressure or diminishes the skin's tolerance to pressure. Risk assessment includes consideration of both patient and environmental factors that are associated with the development of pressure ulcers (5). The most frequent risk factors for the development of pressure ulcer include reduced mobility or immobility, lack of sensation, undernourishment, compromised vascular supply, shear and the surface on which patients lie, sit or lean (23).

In 2007, a cross sectional comparative study conducted in Netherlands showed that nurses were moderately aware of the usefulness of preventive measures. Adequate dissemination of pressure ulcer prevention guidelines is a prerequisite to improve the quality of pressure ulcer prevention (24).

One quantitative study in Uganda revealed that more than half (59%) of the nurses were able to identify risk factors for pressure ulcers. Among those respondents, 96.4% identified immobility and 92.9% identified pressure and friction as risk factors for pressure ulcer development. Similarly the participants also identified patients at risk of developing pressure ulcers; among which, 28.6% identified hypoxemic, 10.7% identified anemic, 42.9% identified ischemic and 50% identified spinal cord injured patients as at risk of developing pressure ulcers (25).

In the Jordanian study on knowledge of nurses it was found that, about half of the sample (49%) had not attained any formal training or education in the form of lectures, courses or workshops on pressure ulcer prevention. Besides this, a limited number of participants (1.7%) attended research conferences in the area of pressure ulcer prevention (12).

The overall mean percent score of knowledge for nurses in Alexandria, Egypt was below the minimum acceptable level. Nurses were not aware of the recommended evidence-based preventive measures. Within this context, their country raised the importance of on-the-job training about pressure ulcers, where 74.6% of sampled nurses had no previous training for pressure ulcer prevention and management (26).

Another study in Bangladesh showed that the average level of nurses' knowledge regarding pressure ulcer prevention was 57.8% and staff nurses perceived a moderate level of overall practice regarding pressure ulcer prevention. According to correlational analysis, there was a small and non significant relationship between knowledge and practice [$r = 0.14$, $p > 0.05$] regarding pressure ulcer prevention, but there was a moderately positive relationship between nurses' attitude and practice [$r = 0.34$, $p < 0.01$] (27).

An observational descriptive study in Turkey revealed that nurses did not consistently engage in interventions recommended for prevention of PU. The most frequently fulfilled behaviors for PU prevention were avoiding hot water when cleansing the skin, helping the patient to eat, refraining from using improper support material, and use of pressure-redistribution surfaces. The least fulfilled behaviors were application of a skin barrier or protectant on moist skin and application of a moisturizer to dry or compromised skin, protecting the skin during patient transfer, repositioning, and documenting prevention interventions (28).

A cross sectional study conducted in Jordan to assess nurses' knowledge to pressure ulcer prevention shows the majority (73%) of nurses had inadequate knowledge about pressure ulcer prevention. In-service training (32%) was the second source of education on pressure ulcer, coming after university training (51%) and 51% of the participants did not receive any type of education after graduation (11).

An empirical qualitative study conducted in Ghana, aiming to assess nurses' knowledge to prevent pressure ulcer and the result indicated that most of the evidence based interventions were mentioned by the participants. However, the participants explained massage as a preventive intervention although the evidence advice against massage. The participants did not mention any interventions considering documentation and nutrition. The nurses' opinion was that their knowledge was enough to prevent pressure ulcers (29).

A similar study in Uganda showed that almost all nurses (98.2%) identified regular turning of patients as a preventive practice. Participants identified proper hydration (42.9%) and balanced diet (42.9%) of the patient as good practices for prevention and management of pressure ulcers. Only 28.6% of the nurses had turned patients at risk of pressure ulcers on a two-hourly basis. In addition, about 96.4%, 58.9% and 33.9% of nurses were conducted patient education, encouraging a balanced diet, and using pressure reduction devices respectively as a pressure ulcer prevention practice (25).

2.3 Attitude towards pressure ulcer prevention

The result of cross-sectional multicenter study in 14 Belgian hospitals showed that application of adequate prevention of pressure ulcer on a nursing ward was significantly correlated with the attitudes of the nurses. No independent correlation was found between knowledge and the application of adequate prevention (16).

The attitude of nurses to prevent pressure ulcer were expressed in many studies. In Jordan, For instance, the majority of participants hold positive attitudes regarding pressure ulcers prevention. The only factor that have an effect on the positive attitude was the experience of

the participants; that was to mean as nurses number of years of experience were increased their tendency to give care for patients with pressure ulcers were more positive (12).

A survey conducted in Swedish revealed that the nursing staff as a whole demonstrated a positive attitude regarding pressure ulcer prevention. There were no significant differences between the groups ($p = 0.078$). The majority (95%) of the nursing staff felt that they should concern themselves with pressure ulcer prevention in their work and just as many (94%) considered that most pressure ulcer could be avoided (30).

In another study that was conducted in Iraq, with the aim of assessing nurses' attitude towards bedsore prevention, it was found that 75% of staff nurses felt that all patients are at risk of developing a pressure ulcer. In addition most (76%) bed sores can be avoided and 99% nurses should concern themselves with bed sores prevention. Majority (92%) of respondents said pressure ulcer prevention was seen as more important than pressure ulcer treatment. Regular (84%) and continuous assessment (94%) were considered as an accurate method for obtaining a picture of patients' risk status (31).

2.4 Perceived barriers to pressure ulcer prevention

The potential and actual barriers to carryout pressure ulcer prevention and management were reported by the same study in Uganda. These include inadequacies of supplies for pressure ulcer prevention and management and shortages of nurses. Heavy workload related to shortage of staff (94.6%), limited resource like shortage of pressure relieving devices (80.4%), lack of evidence (literature) supported by research (37.5%) and inadequate knowledge about pressure ulcer (23.2%) were also mentioned as a barrier to prevent pressure ulcer. Patients were also considered as a barrier when they were identified as uncooperative (62.5%) (25).

In a study with a similar theme, conducted in Jordan with an aim of identifying specific barriers to prevent pressure ulcer, results indicate lack of staff was the most commonly cited barrier to carrying out pressure ulcer prevention measures (87%), followed by lack of time (84%). The ‘patient’ was also considered by many participants as a barrier (68%); in terms of patients being uncooperative or medically unstable, which makes prevention difficult. Similarly around half of subjects regarded the following as existent barriers to pressure ulcer prevention: lack of policies and guidelines about pressure ulcer prevention (50%), Lack of cooperation with other health professionals (51%) and Lack of job satisfaction (57%) (12).

In summary, pressure ulcer is a localized injury to the skin and/or underlying tissue usually over a bony prominence as a result of pressure, or pressure in combination with shear and/or friction. As literature indicated, there are several factors contributed for the development of pressure ulcers. These included peripheral vascular diseases, prolonged immobility, and poor nutritional status, incontinency and aging as intrinsic factors while pressure, shear, friction, moisture and therapeutic devices as extrinsic factors. Although pressure ulcer prevalence is wide ranged related to the care setting and types of patients as well as nurses, most reviewed literatures reported that pressure ulcer is largely preventable. From these one can deduced that, there can be lack of knowledge as well as favorable attitude besides care setting that might potentially hinder effective practice of pressure ulcer prevention.

2.5 Conceptual Frame work

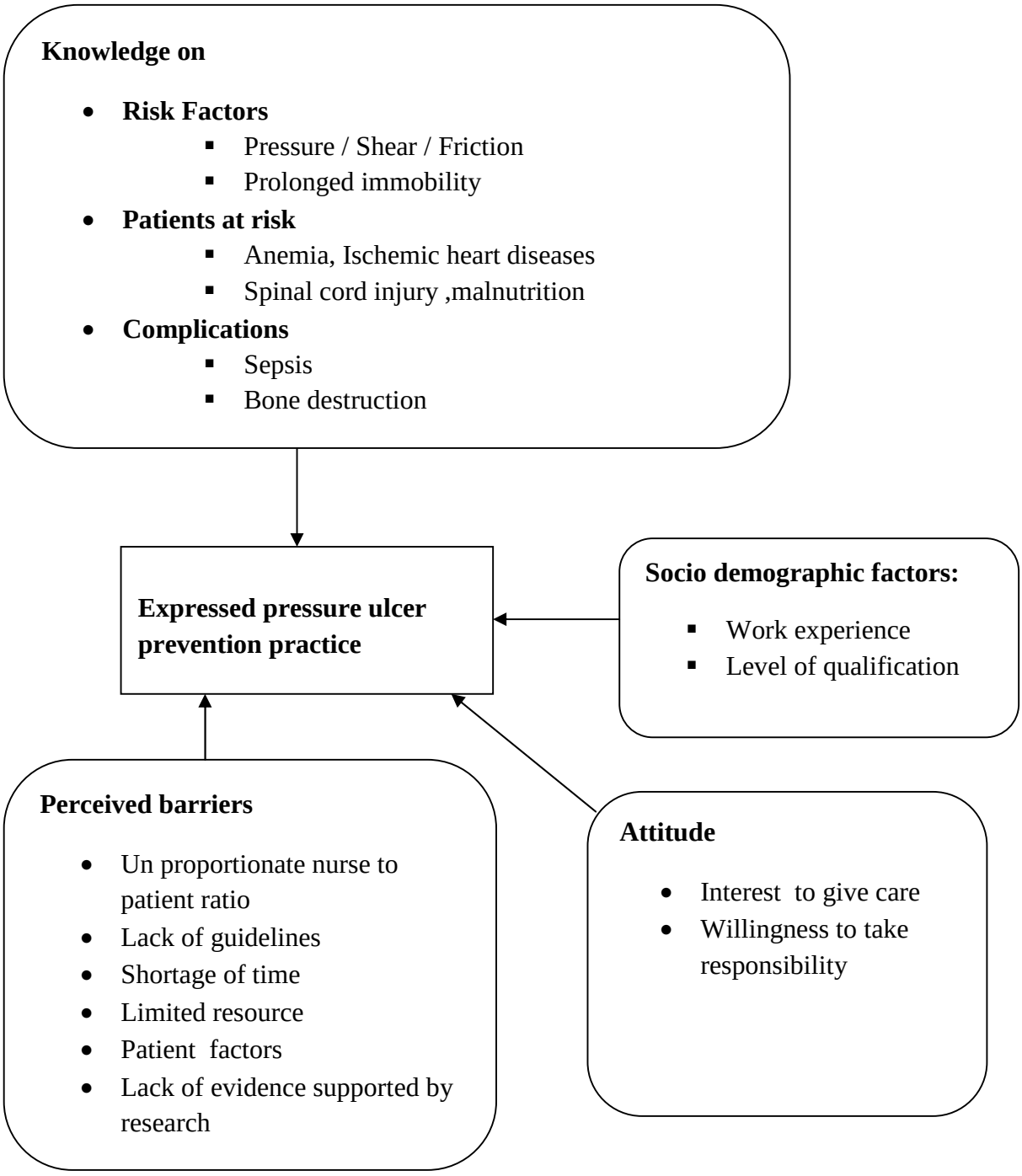


Figure 1: Conceptual frame work of nurses' knowledge, attitude and perceived barriers to pressure ulcer prevention practice developed by the principal investigator by reviewing different literatures(11, 25- 32)

3. Objectives

3.1 General objective

- To assess nurses' knowledge, attitudes and perceived barriers to expressed pressure ulcer prevention practices in Addis Ababa government hospitals, Addis Ababa, Ethiopia, 2015

3.2 Specific objectives

- To determine the level of knowledge of nurses' to expressed pressure ulcer prevention practice in Addis Ababa government hospitals, Addis Ababa, Ethiopia, 2015
- To assess the attitude of nurses' towards expressed pressure ulcer prevention practice in Addis Ababa government hospitals, Addis Ababa, Ethiopia, 2015
- To identify the barriers that influence pressure ulcers prevention practice as perceived by nurses in Addis Ababa government hospitals, Addis Ababa, Ethiopia, 2015

4. Methods and materials

4.1 Study Design

An institutional based cross-sectional study design was conducted to assess nurses' knowledge, attitude and perceived barriers to expressed pressure ulcer prevention practices in Addis Ababa government hospitals.

4.2 Study Area and Period

The study was conducted in Addis Ababa. Addis Ababa is the capital city of Ethiopia and Seat of African Union and the United Nations World Economic Commission for Africa. It covers an area of 527 square kilometers and has 10 sub cities. The city has a total population of 3,103,999 of these 1,479,000 (47.6%) were males and 1,624,999 (52.4%) were females. The city has 12 government hospitals (32).

The study was conducted in Black Lion, Ras Desta Damtew and Saint Paul's hospitals. There are a total of 1129 nurses in these hospitals; among which 565 are found in Black Lion, 104 in Ras Desta Damtew and 460 in Saint Paul's hospitals.

Black Lion hospital is established in 1966 and located in Lideta Sub City. Formerly it was called Lule Mekonnen for memory Harar, but in 1975 it is named as Black Lion hospital. It is the largest referral hospital in the nation at a tertiary level and its placement covers an area of 4500 meter square. Currently it is under Addis Ababa University (AAU) as part of the center of teaching hospital. It has 543 beds and around 2000 patients admitted per month on average.

Ras Desta Damtew memorial hospital, which was built in 1924, is found in Arada sub city. Currently it is one of the hospitals under Addis Ababa health bureau having 98 beds.

Saint Paul's hospital is the second largest hospital of the nation found in Gulele Sub City. It was built by Emperor Haile Selassie in 1969 with the help of the German Evangelical Church. In 2007 it became a medical college and its core services include the provision of medical care, teaching and research. It has 350 beds. The hospital provides service on average for 200,000 patients annually. Similarly its catchment population is more than 5 million.

The study was conducted from April to May, 2015.

4.3 Source population

The source population was all nurses working as staff in Addis Ababa government hospitals

4.4 Study population

The study subjects were all nurses working as staff in the 3 selected government hospitals in Addis Ababa (Black Lion, Saint Paul's and Ras Desta Damtew hospitals) and those fulfilling inclusion criteria.

4.5 Eligibility criteria

4.5.1 Inclusion criteria

All staff nurses working in the 3 selected government hospitals in Addis Ababa (Black Lion, Saint Paul's and Ras Desta Damtew hospitals) who were willing to participate and available during study period were included in the study.

4.5.2 Exclusion criteria

Nurses who are in annual leave and seriously ill during data collection period in the 3 selected Addis Ababa government hospitals were excluded from the study.

4.6 Sample size determination

The sample size was determined by using a single population proportion formula and considering the following assumptions: prevalence (p) of pressure ulcer 16.8 % (4), Z = standard normal distribution value at 95% confidence level of Zα/2 = 1.96 and margin of error (d) = 5%.

$$n = \frac{(Z\alpha/2)^2 P (1-P)}{d^2}$$

$$n = \frac{(1.96)^2 . 0.168(1-0.168)}{(0.05)^2}$$

n= 215

The final sample size was determined as follows by using correction formula:

nf = no/[1 + no/N]

Where;

- nf = the final sample size,
- no = initial sample size 215 and
- N = number of staff nurses working in Addis Ababa government hospitals

$$nf = \frac{no}{1+\frac{no}{N}} = \frac{215}{1+\frac{215}{2400}} = 197$$

Considering a 10 % non-response rate, the total sample size was:

$\frac{10}{100}$ X 197 = 20, 20+ 197 = 217

Hence, 217 staff nurses were included in this study.

4.7 Sampling Procedure

A simple random sampling (SRS) was used to select 3 hospitals from 12 government hospitals in Addis Ababa. After allocating nurses from the 3 selected government hospitals by proportional allocation to size (PAS), the participants were selected by using simple random sampling.

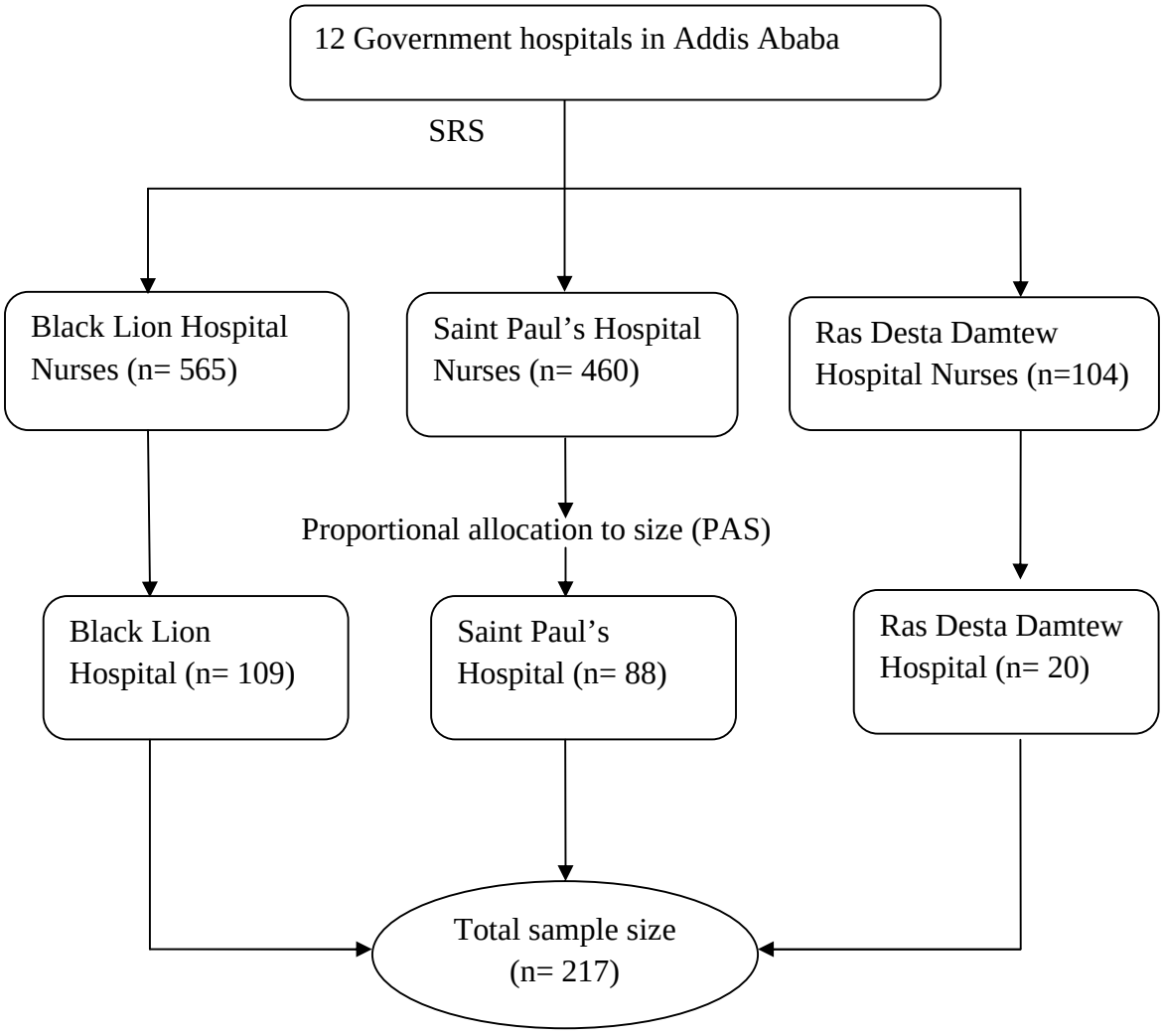


Figure 2: The schematic presentation of sampling procedure to select study participants from Addis Ababa government hospitals, 2015

4.8 Variables of the study

4.8.1 Dependant variable

- Expressed pressure ulcer prevention practice

4.8.2 Independent variables

- Socio demographic characteristics (years of experience, level of qualification)
- Knowledge of nurses on
    - Risk factors
    - Complications and
    - Patients at risk of pressure ulcers
- Attitude of nurses
    - Interest to give care
    - Willingness to take responsibility
- Perceived barriers
    - Un proportionate nurse to patient ratio
    - Lack of guidelines
    - Shortage of time
    - Limited resource
    - Patient factors
    - Lack of evidence supported by research

4.9 Data collection methods

4.9.1 Data collection tool

Data were collected using structured self administered questionnaire having four parts, the first part containing socio demographic information. The second part of the questionnaire was assessing the knowledge and expressed practice of nurses to pressure ulcer prevention, which comprises of facts, risk factors and preventive practices to pressure ulcer. The third part contains questions that are used to assess the attitude of nurses towards pressure ulcer prevention practice and the final part of the questionnaire was asking to identify the barriers to give care for pressure ulcer. The questionnaire was adapted by reviewing literatures of similar studies and guidelines prepared to prevent pressure ulcers [(25), (33)].

4.9.2 Data collection procedure

The data were collected by 6 trained diploma nurses and was supervised by 3 BSc nurses having previous experience in data collection. Continuous follow up and supervision was also made by principal investigator throughout the data collection period.

4.9.3 Data quality Assurance

In order to maintain quality of the data, data collectors and supervisors were trained in data collection procedures. The questionnaire was also been carefully designed and English version was used for data collection. Before actual data collection time the questionnaire (tool) was checked for clarity, comprehensiveness and content validity by an expert as well as pretested for reliability on 10% of the total sample at Debre Markos Referral hospital, there by possible adjustment or modification were made on the tool. The collected data were then reviewed and checked for completeness and consistency by the principal investigator on a daily basis.

4.10 Data processing and analysis

The data were entered in to EPI- data version 3.1, and then the data were cleaned and analyzed by using Statistical Package for Social Science (SPSS) version 21 statistical software. Descriptive statistics were used. Bivariate and multivariate logistic regression was computed to assess statistical association between the outcome variable and independent variables using Odds Ratio; significant of statistical association was assured or tested using 95% confidence interval (CI) and p value (<0.05).

4.11 Operational Definitions

- **Adequate Knowledge:** nurses who answered greater than or equal to 80% of the knowledge questions correctly.
- **Inadequate knowledge:** Those nurses who answered less than 80% of the knowledge questions correctly.
- **Favorable attitude:** Those nurses who were positively worded and scored points more than the median in the attitude questionnaire.
- **Unfavorable attitude:** Those nurses who were negatively worded and scored points less than the median in the attitude questionnaire.
- **Good expressed pressure ulcer prevention practice:** nurses who answered greater than or equal to 80% of expressed pressure ulcer prevention practice related questions correctly.
- **Poor expressed pressure ulcer prevention practice:** nurses who answered less than 80% of expressed pressure ulcer prevention practice related questions correctly.
- **Perceived barriers:** if nurses answered ‘agree’ or ‘strongly agree’ with the listed barriers in the perceived barrier questionnaire.

4.12 Ethical consideration

Ethical clearance was obtained from Addis Ababa University (AAU), College of Health Sciences, Department of Nursing and Midwifery Institutional Review Board (IRB) research committee. After obtaining official letter from the department, a permission letter was provided to Black Lion, Saint Paul's and Ras Desta Damtew Hospitals before data collection. The study participants were informed about the objective, rationale and expected outcomes of the study and written consent was provided for guaranteeing their choice of participation or refusal. All the information was recorded anonymously and confidentiality was assured throughout the study.

4.13 Dissemination of the result

The final report of the study will be presented and submitted in the form of soft and hard copy to Addis Ababa University, College of Health Sciences, Department of Nursing and Midwifery. In addition, efforts will be made to present the findings on scientific conferences like professional associations and peer reviewed journal publications will also be considered.

5. Results

5.1 Socio demographic characteristics

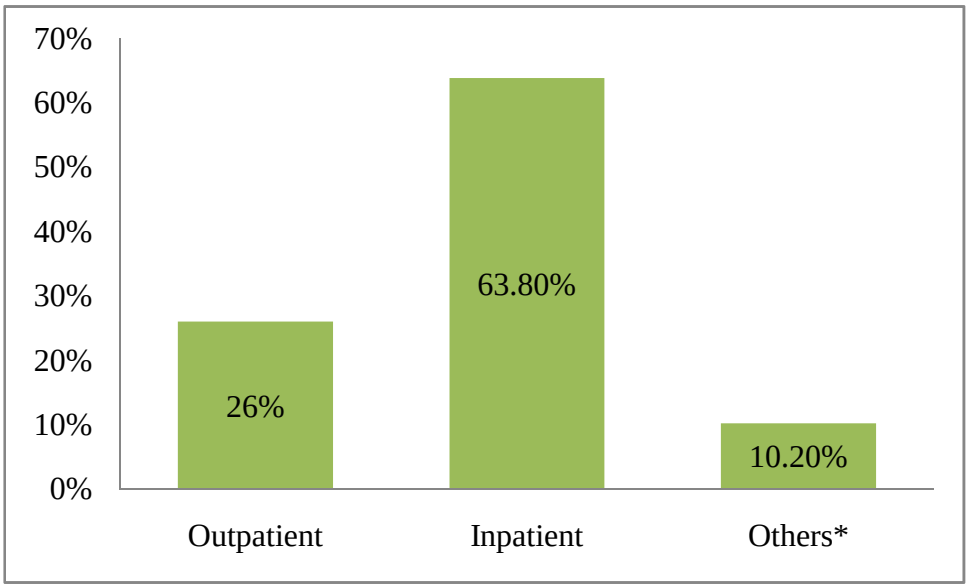
A total of 217 eligible nurses were included in the study. Among this, only 196 nurses were voluntarily agreed to participate in this study, but 21 were either refuse or submit largely incomplete questionnaires. This resulted in a response rate of 90.3%.

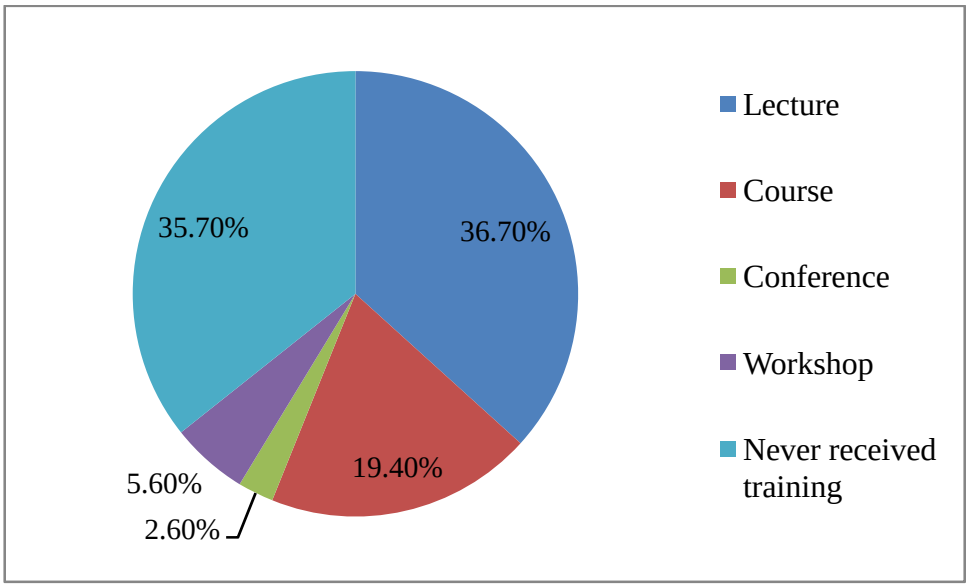
Out of 196 respondents, 133 (67.9%) were females. Moreover, the age of the participants included in this study ranged between 20 and 59 years with mean age of 27.93(SD=±6.596) years. From the respondents, 142(72.4%) were orthodox and 134(68.4%) were single. The majority, 151 (77%) of nurses were bachelor degrees (Table1).

Table 1: Socio demographic characteristics of nurses in Addis Ababa government hospitals, Ethiopia, 2015 (n=196)

Variable	Frequency (n=196)	Percent (%)
Sex		
Male	63	32.1
Female	133	67.9
Age		
20-29 years	139	71
30-39 years	44	22.4
≥40 years	13	6.6
Ethnicity		
Amhara	108	55.1
Oromo	45	23
Tigrie	21	10.7
Others *	22	11.2
Marital status		
Married	54	27.6
Single	134	68.4
Divorced	5	2.5
Widowed	3	1.5
Religion		
Orthodox	142	72.4
Muslim	18	9.2
Protestant	30	15.4
Catholic	4	2
Others**	2	1
Level of qualification		
Diploma	39	19.9
Bachelor degree	151	77
Masters degree	6	3.1
Years of work experience		
1-4	112	57.1
5-10	58	29.6
>10	26	13.3
Read literature on PU prevention		
Always	25	12.8
Sometimes	120	61.2
Never	51	26

Key: *= Guragie and foreigners and**= Jehovah


70%
60%
50%
40%
30%
20%
10%
0%
26%
63.80%
10.20%
Outpatient
Inpatient
Others*


35.70%
36.70%
19.40%
5.60%
2.60%
Lecture
Course
Conference
Workshop
Never received training

5.2 Nurses knowledge about pressure ulcer prevention

McDonald's standard of learning outcome measured criteria was used to categorize nurses' level of knowledge regarding pressure ulcer prevention. Nurses who scored < 60, 60-69,70-79, 80- 89 and 90- 100 were considered as having very low, low, moderate, high and very high knowledge respectively. Accordingly, 23(11.7%), 19(9.7%), 34(17.3%), 16(8.2%) and 104(53.1%) of the participants had very low, low, moderate, high and very high knowledge regarding pressure ulcer prevention respectively. Generally 120(61.2%) of the participants had adequate knowledge about pressure ulcer prevention practice whereas 76(38.8%) had inadequate knowledge.

5.2.1 Knowledge of facts about pressure ulcer

Majority, 174 (88.8%) of the participants were aware that pressure ulcer commonly occurred around bony prominences. About 43(21.9%) of respondents did not know that pressure ulcers contributes to overall hospital costs incurred by the patient (Table 2).

Table 2: Distribution of right and wrong responses about facts of pressure ulcer prevention practice among nurses in Addis Ababa government hospitals, 2015

Facts about pressure ulcer assessment	Response	Frequency (n=196)	Percent
Pressure Ulcer (PU) is mark against the caregiver as poor or nonexistent care	Right	152	77.6
	Wrong	44	22.4
Areas of skin compromised as a result of unrelieved pressure	Right	161	82.1
	Wrong	35	17.9
Pressure ulcer occur in immobile patients	Right	172	87.8
	Wrong	24	12.2
Pressure ulcer is developed in stages	Right	170	86.7
	Wrong	26	13.3
Commonly occur around bony prominences	Right	174	88.8
	Wrong	22	11.2
Pressure ulcer can lead to permanent disabilities like bone destruction	Right	160	81.6
	Wrong	36	18.4
Sepsis is one of the complications of pressure ulcer	Right	168	85.7
	Wrong	28	14.3
Pressure ulcer contributes to the overall hospital costs incurred by patient	Right	153	78.1
	Wrong	43	21.9

5.2.2 Risk Factors for Pressure Ulcers Development

Nurses were asked to identify possible risk factors for pressure ulcers. Among 196 respondents, 180 (91.8%) identified prolonged immobility, 173 (88.3%) identified constant pressure / compression and 139(70.9%) identified anemia as a risk factor (Table 3).

Table 3: Distribution of right and wrong responses about risk factors and patients at risk for pressure ulcer assessment among nurses in Addis Ababa government hospitals, 2015

Risk factors and patients at risk assessment	**Response**	**Frequency (n= 196)**	**Percent**
Prolonged immobility	Right	180	91.8
	Wrong	16	8.2
Constant pressure/compression	Right	173	88.3
	Wrong	23	11.7
Friction/shear	Right	168	85.7
	Wrong	28	14.3
Moist surfaces in which patients lie	Right	153	78.1
	Wrong	43	21.9
Using improper support materials	Right	168	85.7
	Wrong	28	14.3
Diabetic mellitus	Right	160	81.6
	Wrong	36	18.4
Hypoxemia	Right	141	71.9
	Wrong	55	28.1
Malnutrition	Right	165	84.2
	Wrong	31	15.8
Anemia	Right	139	70.9
	Wrong	57	29.1
Ischemic heart diseases	Right	136	69.4
	Wrong	60	30.6
Spinal cord injury	Right	164	83.7
	Wrong	32	16.3

5.3 Nurses attitude to expressed pressure ulcer prevention practice

Scores for each attitude related question was summarized and the responses were then categorized in to two variables, namely favorable attitude and unfavorable attitude. Nurses who were positively worded for each attitude related questions were categorized as having favorable attitude whereas respondents who were negatively worded for each attitude related questions were classified in the unfavorable attitude category. Finally, overall attitude score of the respondents were calculated. Those nurses who score above the median were considered as having favorable attitude while those who scored below the median were labeled as having unfavorable attitude. Accordingly, 134(68.4%) of nurses had favorable attitude while 62(31.6%) had unfavorable attitude to expressed pressure ulcer prevention practice.

Table 4: The distribution of attitude towards expressed pressure ulcer prevention practice among nurses in Addis Ababa government hospitals, 2015

Attitude component	**Yes (%)**	**No (%)**	**Total (%)**
In your view are all patients at potential risk of developing pressure ulcers (PU)?	105 (53.6)	91 (46.4)	196(100)
Do you think pressure ulcer prevention is time consuming to carry out?	85(43.4)	111(56.6)	196(100)
Do you have willingness to care for patients with pressure ulcer?	176(89.8)	20(10.2)	196(100)
Do you feel that priority of care is given for patients who are at risk of pressure ulcer?	176(89.8)	20(10.2)	196(100)
Do you believe that most pressure ulcers can be prevented?	179(91.3)	17(8.7)	196(100)
Do you think patients who are admitted receive adequate prevention of pressure ulcer while in bed (seated?	124(63.3)	72(36.7)	196(100)
Do you think pressure ulcer risk assessment should be regularly carried out on all patients during their stay in hospital?	145(74)	51(26)	196(100)
Do you perceive that nurses hold major responsibilities when patients are vulnerable to pressure ulcer?	165(84.2)	31(15.8)	196(100)

5.4 Perceived barriers to pressure ulcer prevention

Nurses were asked to indicate their agreement about the existence of specific barriers in the work environment. If nurses answered 'strongly agree' or 'agree' on the listed barrier; it was considered as a perceived barrier and nurses who answered 'disagree' or 'strongly disagree' on the listed barrier; the barrier was not considered as a perceived barrier for expressed pressure ulcer prevention practice. Based on this assumption, unproportionate nurse to patient ratio was the most frequently reported barrier to carry out pressure ulcer prevention practices (67.9%; n=133), followed by lack of job satisfaction (64.3%; n=126).

Table 5: Perceived barriers to expressed pressure ulcer prevention practice in Addis Ababa government hospitals, 2015

Perceived barrier	**Yes (%)**	**No (%)**	**Total (%)**
Unproportionate nurse to patient ratio	133(67.9%)	63(32.1%)	196(100%)
Shortage of time	100(51%)	96(49%)	196(100%)
Shortage of equipment	105(53.6%)	91(46.4%)	196(100%)
Lack of training and education	110(56.1%)	86(43.9%)	196(100%)
Lack of policies and guidelines	98(50%)	98(50%)	196(100%)
Lack of evidence supported by research	85(43.4%)	111(56.6%)	196(100%)
Patient factors	104(53.1%)	92(46.9%)	196(100%)
Lack of job satisfaction	126(64.3%)	70(35.7%)	196(100%)
Lack of pressure ulcer related knowledge	81(41.3%)	115(58.7%)	196(100%)

5.5 Expressed pressure ulcer prevention practice

McDonald's standard of learning outcome measured criteria was used to categorize nurses' level of practice regarding pressure ulcer prevention. Nurses who scored < 60, 60-69,70-79, 80- 89 and 90- 100 were considered as having very low, low, moderate, high and very high practice respectively. Accordingly, 41(20.9%), 23(11.7%), 17(8.7%) and 115(58.7%) of the

participants had very low, moderate, high and very high practice regarding pressure ulcer prevention respectively. Generally 132(67.3%) of the participants had good practice about pressure ulcer prevention whereas 64(32.7%) had poor practice.

From the respondents, 180(91.8%) identified regular turning of patients every 2 hours, 172(87.8%) identified removing any tightly fitting clothes from the patient and 168(85.7%) identified protecting the skin during patient transfer as good pressure ulcer prevention practices (Table 6).

Table 6: Expressed pressure ulcer prevention practice among nurses in Addis Ababa government hospitals, Ethiopia, 2015

Prevention strategies assessment	**Response**	**Frequency (n=196)**	**Percent**
Regular turning/ repositioning of patients every 2 hours	Right	180	91.8
	Wrong	16	8.2
Keeping patients skins dry and moist	Right	163	83.2
	Wrong	33	16.8
Ensuring patient is well hydrated	Right	147	75
	Wrong	49	25
Encouraging patients to have a balanced diet	Right	157	80.1
	Wrong	39	19.9
Avoid hot water when cleansing the skin	Right	134	68.4
	Wrong	62	31.6
Protecting the skin during patient transfer	Right	168	85.7
	Wrong	28	14.3
Removing any tightly fitting clothes from the patient	Right	172	87.8
	Wrong	24	12.2
Providing cushions on areas at risk of pressure ulcers	Right	170	86.7
	Wrong	26	13.3
Catheterization in case of incontinence patients	Right	156	79.6
	Wrong	40	20.4
Documenting prevention interventions	Right	163	83.2
	Wrong	33	16.8

5.6 Factors associated with expressed pressure ulcer prevention practice

In bivariate logistic regression analysis; nurses over all knowledge, over all attitude, unproportionate nurse to patient ratio, lack of policies and guidelines, lack of evidence supported by research, lack of job satisfaction and lack of pressure ulcer related knowledge were statistically associated with expressed pressure ulcer prevention practice with p-value less than 0.05 at 95% confidence interval (Table 7).

After bivariate analysis, only those variables which were significantly related (p- value < 0.05) were entered for further multivariate analysis. By adjusting potential confounders in multivariate logistic regression analysis; only nurses over all knowledge, unproportionate nurse to patient ratio, lack of policies and guidelines, as well as lack of job satisfaction were significantly associated with expressed pressure ulcer prevention practice. But participants over all attitude, lack of evidence supported by research and lack of pressure ulcer related knowledge weren't significantly associated with expressed pressure ulcer prevention practice in multivariate analysis.

Overall knowledge level, unproportionate nurse to patient ratio, lack of policies and guidelines and lack of job satisfaction were negatively associated with expressed pressure ulcer prevention practice. Nurses who have inadequate knowledge were 0.29 times less likely to practice expressed pressure ulcer prevention (AOR=0.29(0.010, 0.085)) as compared to knowledgeable nurses. Moreover, nurses who work in settings having unproportionate nurse to patient ratio were 0.294 times less likely to practice pressure ulcer prevention (AOR= 0.294 (0.093, 0.927) than nurses who work in settings having adequate nurse to patient ratio.

Similarly, nurses who work in settings lacking specific policies and guidelines towards pressure ulcer prevention were 0.213 times less likely to practice pressure ulcer prevention (AOR= 0.213(0.076, 0.596)) than nurses work in settings having policies and guidelines to pressure ulcer prevention. In addition, nurses who are not satisfied by their job were 0.111 times less likely to practice pressure ulcer prevention (AOR=0.111(0.037, 0.334)) than nurses who reported satisfaction with their job.

Table 7: Bivariate and multivariate logistic regression analysis of factors associated with expressed pressure ulcer prevention practice in Addis Ababa government hospitals, 2015

Variables	Response	Expressed pressure ulcer prevention practice				
		Poor	Good	COR(95% CI)	AOR(95% CI)	p- value (overall)*
Over all knowledge	Inadequate knowledge	52(81.3%)	24(18.2%)	0.51(0.024, 0.111)	**0.29(0.010, 0.085)**	**0.001**
	adequate Knowledge	12(18.8%)	108(81.8%)	1.00	1.00	
Overall attitude	Unfavorable attitude	27(42.2%)	35(26.5%)	1.00	1.00	
	Favorable attitude	37(57.8%)	97(73.5%)	2.022(1.078, 3.793)	1.387(0.526, 3.652)	0.508
Un proportionate nurse to patient ratio	Yes	50(78.1%)	83(62.9%)	0.474(0.238, 0.945)	**0.294(0.093, 0.927)**	**0.037**
	No	14(22%)	49(37.1%)	1.00	1.00	
Lack of policies and guidelines	Yes	46(71.9%)	52(39.4%)	0.254(0.133, 0.486)	**0.213(0.076, 0.596)**	**0.003**
	No	18(28.1%)	80(60.6%)	1.00	1.00	
Lack of evidence supported by research	Yes	35(54.7%)	50(37.9%)	0.505(0.276, 0.925)	1.629(0.541, 4.901)	0.385
	No	29(45.3%)	82(62.1%)	1.00	1.00	
Lack of job satisfaction	Yes	55(85.9%)	71(53.8%)	0.190(0.087, 0.417)	**0.111(0.037, 0.334)**	**0.001**
	No	9(14.1%)	61(46.2%)	1.00	1.00	
Lack of PU related knowledge	Yes	33(51.6%)	48(36.4%)	0.537(0.293, 0.983)	0.699(0.253, 1.932)	0.490
	No	31(48.4%)	84(63.6%)	1.00	1.00	

1.00 = Reference *= p -value < 0.05(significant) at 95% confidence interval

6. Discussion

The main purpose of this study was to assess nurses' knowledge, attitude and perceived barriers to expressed pressure ulcer prevention practices. Though there are a plethora of studies that were done in an international context aiming to assess the knowledge, attitude, practice and barriers towards pressure ulcer prevention, there is almost no study that was conducted on a national basis.

This finding revealed that 38.8% of nurses had inadequate knowledge about pressure ulcer prevention practice. This is less than a study done in Bangladesh, where 57.8% of nurses had inadequate knowledge (27) and in Jordan, where 73% of nurses had inadequate knowledge about pressure ulcer prevention (11). The possible explanation could be lack of trainings and evidences supported by research.

Another factor that affects expressed pressure ulcer prevention practice was knowledge level. Knowledge level was significantly associated with expressed pressure ulcer prevention practice in this study. Nurses who have inadequate knowledge were 0.29 times less likely to practice expressed pressure ulcer prevention (AOR=0.29(0.010, 0.085)) as compared to knowledgeable nurses. While a study done in Bangladesh showed that there was no significant association between nurses knowledge and practice [r = 0.14, $p > 0.05$] (27). This can be explained by differences in methodological approaches.

In this study, only 68.4% of the participants had favorable attitude to pressure ulcer prevention practice, this is much lower than a survey done in Sweden, where nursing staffs as a whole demonstrated positive attitude regarding pressure ulcer prevention (30) and similarly in Iraq, 99% of the nurses had positive attitude to pressure ulcer prevention practice (31).

The finding of this study showed that the attitude of nurses was not significantly associated with expressed pressure ulcer prevention practice. However, a study done in Bangladesh showed a moderately positive relationship between nurses' attitude and practice (27).

Similarly, nurses who work in settings lacking specific policies and guidelines towards pressure ulcer prevention were 0.213 times less likely to practice pressure ulcer prevention (AOR= 0.213(0.076, 0.596)) than nurses work in settings having policies and guidelines to pressure ulcer prevention. Besides this, 50% of the respondents reported that lack of policies and guidelines were barriers to practice pressure ulcer prevention. This was exactly congruent with a study done in Jordan, where about 50% of nurses identified that lack of specific policies and guidelines as an existent barrier to give care for patients with pressure ulcer (12). This can be explained by the fact that the presence of policies and guidelines that advocate for proper patient care are likely to increase the practice of nursing interventions such as pressure ulcer prevention.

In addition, nurses who are not satisfied by their job were 0.111 times less likely to practice pressure ulcer prevention (AOR=0.111(0.037, 0.334)) than nurses who reported satisfaction with their job. In this study, 64.3% of nurses reported that lack of job satisfaction is a barrier to pressure ulcer prevention practice. This was relatively analogous with a study done in Jordan, where 57% of respondents identified lack of job satisfaction as an existent barrier to pressure ulcer prevention (12). This could be due to the fact that; if a person is not satisfied by an issue, the possibility of performing a supportive action related to that issue will also be decreased.

Furthermore, 67.3% of the participants had good expressed pressure ulcer prevention practice. Whereas a study in Bangladesh, found that staff nurses perceived a moderate level of overall practice regarding pressure ulcer prevention(27). The difference between the healthcare setups of Ethiopia and Bangladesh might explain the relatively discrepant results in pressure ulcer prevention practice.

Consistent with the studies done in Turkey(28) and Uganda (25), participants in this research reported some of the frequently applied pressure ulcer prevention practices. These include patient repositioning (91.8%), keeping patient skins dry and moist (83.2%), balanced diet (80.1%), protecting the skin during patient transfer (85.7%), documenting prevention strategies (83.2%) and removing any tightly fitting clothes from the patient (87.8%).

7. Strengths and Limitations of the study

7.1 Strengths of the study

- ✓ The study could be said the first in assessing nurses' knowledge, attitude and perceived barriers to expressed pressure ulcer prevention practice in the country
- ✓ Three government hospitals were included to make the study representative
- ✓ The questionnaire was pretested and corrected accordingly to make the tool easily understandable

7.2 Limitations of the study

- ✓ The fact that no study were conducted so far in Ethiopia on this topic, no enough literature was available to discuss on national context
- ✓ The practice component may not be well addressed, as observational checklist was not used.
- ✓ The study may be subjected to response set bias from the respondents
- ✓ The study was cross sectional; therefore it was difficult to know which occurred first the exposure or the outcome.

8. Conclusion and Recommendation

8.1 Conclusion

- More than half of the nurses were found to have adequate knowledge regarding pressure ulcer prevention.
- The outlook of nurses in Addis Ababa government hospitals towards pressure ulcer prevention was majorly favorable.
- The most reported barriers for expressed pressure ulcer prevention practice were unproportionate nurse to patient ratio, lack of policies and guidelines about pressure ulcer prevention, lack of evidence supported by research, lack of job satisfaction and lack of pressure ulcer related knowledge.
- Pressure ulcer prevention practice was affected by the participant's level of knowledge and attitude.

8.2 Recommendations

To FMOH and policy makers

- The FMOH should give further trainings for nurses to enhance their knowledge on pressure ulcer prevention practice
- Policy makers should prepare policies and guidelines to prevent pressure ulcer in hospitals

To professional nurses

- Nurses need to enhance their attitude and knowledge on pressure ulcer prevention in order to further improve nursing practice in this area.
- Nurses, who had better knowledge, should also teach their respective colleagues who had deficits for the betterment of nursing care.

To health service managers

- Health service managers should identify the perceived barriers of care and then minimize these barriers as much as possible to prevent pressure ulcer.
- Should recruit nurses to balance their numbers with the respective patient in order to provide interventions such as pressure ulcer prevention.

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Appendix I: Information sheet

Good morning/afternoon! My name is ----------. I am a postgraduate student in Addis Ababa University, College of health sciences, Department of Nursing and Midwifery doing the following research.

Title of the research: Assessment of nurses' knowledge, attitude and perceived barriers to expressed pressure ulcer prevention practice in Addis Ababa government hospitals.

Purpose: This Self administered questionnaire is provided to assess nurses' knowledge, attitude and perceived barriers to expressed pressure ulcer prevention practice. Your name will not be written in this form and all the information you will give is kept confidential. If you do not want to answer all or some of the questions, you do have the right to do so. However, your willingness to answer all of the questions is highly appreciated. It doesn't take more than 10 minutes. You are selected by simple random sampling technique.

Benefit and risk

Your participation in this study help us in assessing the knowledge gaps, attitudes and identifying perceived barriers to prevent pressure ulcer among nurses and will have the benefit of introducing the need for special trainings and guideline development. Participating in the study does not involve any risks.

If you have any questions contact any of the following individuals and you can ask at any time you want:

1. Address of investigator: Abebe Dilie, Tel: +251911583179 and Email: abexdmu@gmail.com
2. Address of Advisors: Daniel Mengistu (Assistant professor), Tel: +251911119597 and Email: mengistudaniel@yahoo.com

Appendix II: Informed consent

Code number ----------

I understand that the purpose of this study is to assess nurses' knowledge, attitude and perceived barriers to expressed pressure ulcer prevention practice. Similarly I understand that participating in this study is completely voluntarily and do not have any payment or incentive; provided my privacy is guaranteed and does not expose to another third party.

I promise to answer honestly to all questions and not provide any false information or in any other way purposely mislead the researcher.

Signature of participant _____ Date _____

Name and Signature of the data collector who sought the consent_____

Name and signature of the supervisor _____

Appendix III: Questionnaire

Part I: Socio Demographic Characteristics of respondents

Instruction: Please circle the number in front of the option you choose.

S .no.	Questions	Response
101	Sex	1. Male 2. Female
102	How old are you?	---------- years
103	What is your ethnicity?	1. Amhara 2. Oromo 3. Tigrie 4. Other (specify)----------
104	What is your marital status?	1. Married 2. Single 3. Divorced 4. Widowed
105	What is your religion?	1. Orthodox 2. Muslim 3. Protestant 4. Catholic 5. Others (specify)---------
106	What is your level of qualification?	1. Diploma 2. Bachelor degree 3. Masters degree
107	How many years do you have work experience?	---------- years/ months
108	What is your area of practice currently?	1. Out patient 2. Inpatient 3. Other (specify)…….
109	How do you receive training on pressure ulcer (PU)?	1. Lecture 2. Course 3. Conference 4. Workshop 5. Never received training
110	How often do you read literatures about pressure ulcer?	1. Always 2. Sometimes 3. Never

Part II: knowledge and expressed practice of nurses to pressure ulcer prevention
Instruction: Please circle the number in front of the option you choose.

S .no	Questions	Response
201	**Facts about pressure ulcer assessment**	
1.	Pressure Ulcer (PU) is mark against the caregiver as poor or nonexistent care	1. True 2. False
2.	Areas of skin compromised as a result of unrelieved pressure	1. True 2. False
3.	Pressure ulcer occur in immobile patients	1. True 2. False
4.	Pressure ulcer is developed in stages	1. True 2. False
5.	Commonly occur around bony prominences	1. True 2. False
6.	Pressure ulcer can lead to permanent disabilities like bone destruction	1. True 2. False
7.	Sepsis is one of the complications of pressure ulcer	1. True 2. False
8.	Pressure ulcer contributes to overall hospital costs incurred by patient	1. True 2. False
202	**Risk factors and patient at risk assessment**	
1.	Prolonged immobility increases the risk for developing pressure ulcer	1. True 2. False
2.	Constant pressure/compression is among the risk factors for developing pressure ulcer	1. True 2. False
3.	Friction/shear increases the risk of developing pressure ulcer	1. True 2. False
4.	Moist surfaces in which patients lie increase the risk for developing pressure ulcer	1. True 2. False
5.	Using improper support materials increases the risk of pressure ulcer	1. True 2. False
6.	Diabetes mellitus is the risk for developing pressure ulcer	1. True 2. False
7.	Hypoxemia is one of the risks to develop pressure ulcer	1. True 2. False
8.	Malnutrition increases the risk to develop pressure ulcer	1. True 2. False
9.	Anemia is the risk to develop pressure ulcer	1. True 2. False
10.	Ischemic heart diseases is the risk to develop pressure ulcer	1. True 2. False
11.	Spinal cord injury increases the risk to develop pressure ulcer	1. True 2. False

	Expressed pressure ulcer prevention practice	
1.	Regular turning /repositioning of patients every 2 hours is a standard of care	1. True 2. False
2.	Keeping patients skins dry and moist is used to prevent pressure ulcer	1. True 2. False
3.	Ensuring patient is well hydrated is one aspect of preventing pressure ulcer	1. True 2. False
4.	Encouraging patients to have a balanced diet is used to prevent pressure ulcer	1. True 2. False
5.	Avoid hot water when cleansing the skin is one way to prevent pressure ulcer	1. True 2. False
6.	Protecting the skin during patient transfer is used to prevent pressure ulcer	1. True 2. False
7.	Removing any tightly fitting clothes from the patient is used as a preventive measure	1. True 2. False
8.	Providing cushions on areas at risk of pressure ulcers is helpful to prevent pressure ulcer	1. True 2. False
9.	Catheterization of incontinence patients helps to prevent pressure ulcer	1. True 2. False
10.	Documenting prevention interventions also enables to prevent pressure ulcer	1. True 2. False

Part III: Respondents Attitude to expressed pressure ulcer prevention practice
Instruction: Please circle the number in front of the option you choose.

No.	**Question**	**Response**
301	In your view are all patients at potential risk of developing pressure ulcers (PU)?	1. Yes 2. No
302	Do you think PU prevention is time consuming to care for?	1. Yes 2. No
303	Do you have willingness to take care of patients with pressure ulcer?	1. Yes 2. No
304	Do you feel that priority of care should be given for patients who are at risk pressure ulcer?	1. Yes 2. No
305	Do you believe that most pressure ulcers can be prevented?	1. Yes 2. No
306	Do you think patients who are admitted receive adequate prevention of PU while in bed (seated)?	1. Yes 2. No
307	Do you think PU risk assessment should be regularly carried out on all patients during their stay in hospital?	1. Yes 2. No
308	Do you perceive that nurses hold major responsibilities when patients are vulnerable to pressure ulcer?	1. Yes 2. No

Part IV: Respondents perceived barriers to expressed PU prevention practice related questions

Instruction: Please mark ″√″ in front of the rating. Rate 1 (strongly agree), 2 (agree), 3 (disagree) or 4(strongly disagree).

S .no	Perceived Barriers	Nurses' rating			
		1	2	3	4
401	Unproportionate nurse to patient ratio				
402	Shortage of time				
403	Shortage of equipment(bed type, safety issue)				
404	Lack of training and education about PU prevention				
405	Lack of policies and guidelines about PU prevention				
406	Lack of evidence supported by research				
407	Patient factors				
408	Lack of job satisfaction				
409	Lack of pressure ulcer related knowledge				

Thank you for your cooperation!

Declaration

I, the undersigned, declare that this thesis is my original work and it has not been presented for a degree in this or any other university and all source materials used for the thesis have been duly acknowledged.

Name of student: Abebe Dilie (BSc)

Signature: _____

Place: Addis Ababa

Date of submission: _____

This thesis has been submitted for examination with my approval as university advisor

Advisor: Daniel Mengistu (BSc. N, MSc. N, Assistant professor)

Signature: _____ Date: _____