PREVALENCE OF PRESSURE ULCER AND ASSOCIATED FACTORS AMONG HOSPITALIZED PATIENTS IN PUBLIC HOSPITALS SIDAMA ZONE, SOUTH NATIONS, NATIONALITIES, AND PEOPLES' REGIONAL STATE, ETHIOPIA, 2017

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THESIS SUBMITTED TO; JIMMA UNIVERSITY, INSTITUTE OF HEALTH, FACULITY OF HEALTH SCIENCES, SCHOOL OF NURSING AND MIDWIFERY IN PARTIAL FULFILLMENT FOR THE REQUIREMENTS OF MASTERS DEGREE IN ADULT HEALTH NURSING

JUNE, 2017

JIMMA, ETHIOPIA

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Abstract

Background: On average, 60,000 people die each year worldwide due to pressure ulcer related causes. Even though, few studies reported the prevalence of pressure ulcer in some part of Ethiopia, there is paucity of information related to pressure ulcer in Sidama Zone.

Objectives: To Assess prevalence of Pressure Ulcer and Associated Factors among Hospitalized Adult Patients in Public Hospitals in Sidama Zone; South Nations Nationalities, and Peoples' Regional State, Ethiopia, 2017.

Methods: Institution based cross sectional study design was conducted On 356 subjects. Multi stage sampling technique was employed to reach individual study subjects. Data was collected using Structured Questionnaire and entered in to EPI- data version 3.1, and was analyzed by using Statistical Package for Social Science version 20. Descriptive statistics, Bivariate and multivariate logistic regression were computed to assess statistical association using Odds Ratio. Significant of statistical association was assured or tested using 95% confidence interval and p value (<0.05).

Results: of all study respondents 212(59.6%) were in age range of 18-39 years, 218(61.2%) female 267(75.0%) married, 230(64.6%) Rural residents and 200(56.2%) Protestant by Religion, 112 (31.5%) cannot read and write. fifty six (15.7%) out of 356 patients admitted to selected Public Hospitals in sidama Zone developed pressure ulcer. Position change (95% CI: AOR, 4.346(1.646,11.473), Body mass index Less than 18.5 kg/m^2 (95% CI: AOR, 6.91(1.307, 36.554), occasionally Moist (95% CI: AOR, 4.734(1.999,11.234), bed fast in activity (95% CI: AOR, 13.365(1.622,110.138), very limited in Mobility (95% CI: AOR, 10.661(1.256,90.494) significant factor associated with the development of Pressure ulcer.

Conclusion: the Overall prevalence of pressure ulcer on this study is high. Position change, Body Mass Index, Activity, mobility, moisture, and Antimicrobial, were significantly associated with pressure ulcer; Each Public Hospitals should Perform Risk and comprehensive assessment for all patients as soon as possible after admission, Provision of training for Nurses on Manual handling techniques when positioning and transferring patients, and if, health condition patients permit nurses should reposition patient every two hours.

Key words: Pressure ulcers, Risk factors, prevalence

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I extend my appreciation to all participants including the study participants for their cooperation during the survey, data collectors, supervisors and staffs of each Hospital the study conducted.

Declaration

I hereby certify that, I have read and evaluate this thesis entitled prevalence of Pressure Ulcer and Associated Factors among Hospitalized Adult Patients in selected public hospitals, sidama Zone, South Nations, and Nationalities Peoples Region, Ethiopia. Prepared under my guidance by Yosef Yohanes, I recommend that it be submitted as fulfilling the thesis requirement.

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As a member of Board of Examiners of MPH/MSc. thesis open defense Examination, I certify that I have read and evaluate the thesis prepared by Yosef Yohanes and examined the candidate. I recommended that that the thesis be accepted as fulfilling the thesis requirement for the degree of Masters of Science in Adult Health Nursing

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STATEMENT OF THE AUTHOR

By my signature below, I declare and affirm that this thesis is my own work. I have followed all the ethical and technical principles of scholarship in the preparation, data collection, data analysis and compilation of this thesis. Any scholarly matter that is included in the thesis has been given recognition through citation.

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Acronyms

AOR	Adjusted Odds Ratio
AWMA	Australian Wound Management Association
BMI	Body Mass Index
CI	Confidence Interval
COR	Crude Odds Ratio
EPUAP	European Pressure Ulcer Advisory Panel
HAPU	Hospital-Acquired Pressure Ulcers
HUCSH	Hawassa University Comprehensive Specialized Hospital
ICU	Intensive Care Unit
LOS	Length of Stay in Hospital
MDRPU	Medical Device Related Pressure Ulcers
NPAUP	National Pressure Ulcer Advisory Panel
PPPIA	Pan Pacific Pressure Injury Alliance
PPS	Probability Proportional to Size
PURAS	Pressure Ulcer Risk Assessment Scale
PUs	Pressure Ulcers
SDTI	Suspected Deep Tissue Injury
SNNPR	South, Nations, Nationalities, and Peoples' Region
SPSS	Statistical Package for Social Sciences

CHAPTER ONE: INTRODUCTION

1.1. BACKGROUND

A pressure ulcer also known as bed sore, pressure ulcer, decubitus 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 [1,2,3,4].

Pressure ulcer classified based on localized damage to the skin and underlying tissue, National Pressure Ulcer Advisory Panel (NPUAP) and European Pressure Ulcer Advisory Panel (EPUAP) developed a common international classification system for pressure ulcers [1]. Stage I: non-blanchable erythema:- intact skin with non-blanchable redness of a localized area usually over a bony prominence. Stage II: Partial thickness skin loss:-loss of dermis presenting as a shallow open ulcer with a red pink wound bed, without slough. Stage III: Full thickness skin loss:- subcutaneous fat may be visible but bone, tendon or muscle not exposed. Stage IV: Full thickness tissue loss:- Full thickness tissue loss with exposed bone, tendon or muscle. Slough or eschar may be present. Exposed bone/muscle is visible or directly palpable. Unstageable Full thickness skin /tissue/ loss - actual depth of the ulcer is completely obscured by slough, and/or eschar in the wound bed. it would be either a Category/Stage III or IV. Suspected Deep Tissue Injury**:** Depth Unknown but Purple or maroon localized area of discolored intact skin or blood-filled blister due to damage of underlying soft tissue from pressure and/or shear [1,5,6].

Prolonged pressure impede capillary and venous return thus limit the delivery of oxygen and nutrients to tissue resulted with Metabolic wastes accumulation causes local vasodilatation, which contributes to edema compresses small vessels and ischemia prone patients at risk for pressure ulcer development (7,8).Therefore Individual who cannot reposition regularly every 2 h (q2h) tend to be at the greatest risk for pressure ulcer development[9].

Preventing pressure ulcers have become a key focus of many healthcare institutions in the US and throughout the world. [10]. According to the American Nurses Association (ANA), pressure ulcer prevention is primarily a nursing responsibility. Eight Prevention strategies for pressure ulcers includes, assessment of risk factors for PU, various support surfaces, repositioning, nutritional assessment and nutritional supplementation, early mobilization, skin and tissue assessment, and preventive skin care. [11,12]. The purpose my study was to identify the prevalence of pressure ulcer, and to determine which risk factors the empirical literature are the best predictors of pressure ulcers in hospitalized patients.

1.2. STATEMENT OF THE PROBLEM

Pressure ulcers remain the major health problem all over the world. It causes distress, pain to patients, infection, delay recovery, Prolong hospital stay and Increase Health care cost which in turn leads to poor quality of life, feeling of un accomplishment in nurses and mortality in certain patients [1,13,14,15]. Meanwhile challenge in the developing countries, due to lack of preventive facilities and trained personnel despite this premise, it is estimated that approximately 4% of the annual healthcare budget is being spent on pressure ulcers, with nursing time accounting for 41% to 96% of these costs [21, 25]**.**

Each year thousands die and millions of Patient suffering from Pressure Ulcer in USA alone [16,17] . The number of patient suffering from PU is a few as 7.3% in hospitals in Europe and as high as 23% in North America [18, 19, 20, 21].

Study reports in Africa revealed comparable magnitudes of pressure ulcer. In Nigeria it ranged from 3.22% to 18.6 % [4, 22]; whereas in some Ethiopian hospitals it ranges from 13.4% to 16.8 % [23, 24].

In reality HAPU is completely preventable and its existence reflects poor quality of patient care. This can be attributed to failure in nursing care in the area of regular skin assessment, position changing, comforting measures and Pressure ulcer Prevention Strategies. Pressure ulcer is one of nursing sensitive outcome indicator, information related it needs to be tracked more frequently contextually; however there is paucity of information related to PU and associated factors in context of Sidama Zone of Ethiopia, Therefore, this study amid at describing pressure ulcer and is factors which can be helpful information for hospital managers in Sidama zone Situation in which PU occurs.

CHAPTER TWO

2.1. LITERATURE REVIEW

2.1.1 Prevalence of pressure Ulcer

Numerous studies on pressure ulcer with different design identified magnitude of pressure ulcer in relation to different factors for the development of the problem around the world.

Cross sectional studies in the Nebraska Medical Center, USA, The overall Prevalence of pressure ulcers was 5·4%. Based on staging 5% and 32% were I, II MDRPUs, the most common locations were ears 35%, and lower leg 11%; another study in the Republic of Ireland prevalence was 9% from which 83% located on sacrum and 33% were Grade II [19, 20].

A multicenter study in Brazil, prevalence of PU was 16.9%. Based on anatomical location; Sacral 82.5%, trochanter 37.5%, calcaneus 27.5%, were the most affected area. Whereas Patients presented with stage I 30.3 %, stage II 32.9 %, stage III 22.8 % and IV 13.9 % [26].

Cross-sectional study from different hospitals in Norway prevalence was 24 %. Stage I comprised most pressure ulcers, and the sacrum, ischial tuberosity, and heels, were the most common sites. Other ulcers were located on the feet, ears and back [25].

Cross-sectional survey in China; prevalence PU was 1.58%, predominate anatomical location and stage were sacrum 60.2% and stage II 35.8%. Another study in Asia; Malaysia prevalence of PU was 15.5%, the most prominent stage and body location were stage II 64.2% and sacrum 72.3% respectively [14, 21].

Survey in Nigeria in among 129 bed-ridden patients prevalence of Pressure ulcer was 18.6%; majority of patients with PU were male 91.7%, age above 65years 37.5%, Stages III 37.5%, and buttocks 50% [4]. Another study in the six university hospitals in Nigeria, rate of PU was 3.22%, male 3.59%, ischium/buttocks 43.6% were the most dominant[22].

Cross-sectional study in Ethiopia, Prevalence of pressure ulcer was 16.8%; higher in male respondents 42% than in female 29%. Based on Stages PU, 62% stage I, 26.8% stage II and 2.8% stage IV; from those developed pressure ulcer, most of the participants 70.4% developed sacral area and 10% patients at both sacral and shoulder area [23]. Another study in Wolaita Sodo Hospital Prevalence of pressure ulcer was 13.4%; higher among male Participant than female [24].

2.1.2. Prevalence of Pressure Ulcer with Braden scale risk assessment/RAS/

A cross-sectional survey study from 1100 patients, in the Republic of Ireland, 77% of the study participants was low risk of pressure ulcer development. However, Braden scale identified 53.5% were either completely immobile or had very limited mobility. 51% was chair-fast and 7% bed-fast. 49% was incontinent of urine and feces, 78% having an adequate or an excellent nutritional status [20]. Another cross-sectional study in Norway different hospitals and community care sites, 32% were at risk for PU [25].

Cross-sectional study in six long-stay institutions for the elderly in São Paulo, the Braden scale scores ranged from 7 to 19. According to the Braden scale, 67.5% of the patients were at high risk of pressure ulcer development [27].

2.1.3. Prevalence Medical device related pressure ulcers

Medical Device Related Pressure Ulcer (MDR PUs) is defined as pressure injuries associated with the use of devices applied for diagnostic or therapeutic purposes. The resultant pressure injury generally conforms to the pattern or shape of the device developed on usual and unusual body areas in patients with medical devices .There were no unique risk factors for differentiation between MDRPU and traditional pressure ulcers [19, 28].

Cross sectional point prevalence study in USA pressure ulcers was 5·4%. From which 1·4% patients had at least one MDR pressure ulcer. The proportion of patients with hospital-acquired ulcers related to medical devices was 34·5%. Whereas Most predominate stage and anatomical Location of MDR HAPUs were stage I 35%, and ears 35% [19].

Study of two major metropolitan hospitals in Saudi Arabia in 84 patients, 33 patients was identified giving a HAPU incidence of 39·3%. A total of 41 HAPUs were recorded in 33 patients. The overall incidence of MDRPU was 8·3%. From those 41 HAPUs, 20% were related to medical devices, and the most common site was the ear 37·5% [29]. As to my knowledge Prevalence of medical device related pressure ulcer study was not done in the study area.

2.2 Factors Associated with Pressure Ulcer

Older age and BMI <19 kg/m^2, Male sex, poor nutritional status and comorbidity have been identified as risk factors for PU development. [30].

2.2.1. Socio-demographic Factors (Age, Gender and Educational status)

A cross-sectional study in South-Eastern Norway, There was no gender difference between patients with and without PUs ($X^2 = 0.862$, $p = 0.353$); however, age 70 or above ($X^2 = 70.347$, $p < 0.001$) differed significantly [7].

Quantitative sectional study Brazil; no significant difference in pressure ulcer occurrence regarding to Gender higher among male ($p = 0.330$), 40 % female and 60% male. While Pressure ulcer among age <40 years 20.0%, 40-59 years 40.0% and ≥ 60 years 40.0% these did not show the presence associated to PU occurrence P=1.000 and No significant Association Between Pressure ulcer and Educational status of patient P=0.988 [2].

Multi-centric prospective observational study in Saudi Arabia; older Age 1.3 times (95% CI: 1·054–1·492; P = 0·011) more likely to develop pressure ulcer than those younger age [29].

Community based cross-sectional study in Ethiopia, age of the patient were associated with the development of pressure ulcer. As Patients age increased, the development of pressure ulcer also increased [23].

2.2.2. Braden Risk Factors

A cross-sectional study in Republic of Ireland, completely immobile or had very limited mobility ($p < 0.0001$) and chair-fast or bed-fast ($p < 0.0001$) were significantly associated with pressure ulcer development. There was significant association between nutritional status and pressure ulcers ($p = 0.024$). Furthermore Mobility and moisture were the highest predictors of pressure ulcer development ($p = 0.002$), and ($p = 0.008$) respectively [20].

A cross-sectional study in Norway, There was a statistically significant association between having a pressure ulcer and being at risk using Braden cut-off 18 ($p< 0.001$) [25].

Study in Kuala Lumpur Malaysia, from October 2012 to May 2013, Braden score ≤ 12 were 1.9 times (95% CI: 1.14, 3.19) more likely to develop pressure ulcer than those Braden score > 12 [21].

Institutional based cross-sectional study, in Ethiopia, patient slightly limited in sensory perception, were 3.3 times (95% CI: 1.39, 7.75) at higher risk to develop pressure ulcer than those who had no impairment in sensory perception. And problem in friction and shearing forces were 4.5 times (95% CI: 1.56, 12.93) more likely to develop pressure ulcer than those who had no apparent problem [23].

Cross sectional study in Wolaita Sodo teaching hospital; patients with very limited sensory perception P<0.05, friction and shearing P<0.05 and bedbound in activity P<0.05 were significant predictors of Pressure Ulcers [24].

2.2.3. Service Related factors

2.2.3.1. Position Change

A cross-sectional study in Republic of Ireland, 76% of participants with existing pressure ulcers had no repositioning care plan, and this finding was statistically significant, p <0.0001) [20].
Study among 84 Participants adult intensive care unit Saudi Arabian, the result illustrated infrequent repositioning were significant predictors of all stages of Pressure ulcers (P = 0·005) [29].

Cross-sectional study among 422 hospitalized patients in Felegehiwot referral hospital, Ethiopia; position change was not significantly associated with PU in multivariate logistic regressions [23], but another Cross sectional study in Ethiopia, participants who not change Position by nurses was associated with develop pressure ulcer (P<0.05) [24].

2.2.3.2 Length of stay in Hospital

Cross-sectional multi-center study in the South-Eastern Norway, Patients with PUs had significantly longer Length of Stay in Hospital than patients with no Pressure Ulcers (p < 0.001) [7].
Multicenter, cross-sectional, study in hospitals in different geographic regions of Brazil, the result depicted that a length of stay in hospital stay between 8 days to 15days significant association with Pressure Ulcers P< 0.05) [26].
Observational study in Kuala Lumpur, longer duration of hospitalization had significantly associated with acquired pressure ulcers (P = 0.032) [21], and another Study done tertiary care hospitals, Saudi Arabia; Length of stay in the ICU significant association with PU (P = 0·001) [29].
Cross-sectional study in Felegehiwot referral hospital Ethiopia, length of stay in hospital was strongly associated with pressure ulcer development [23].

2.2.3.3. Drug Profile

The study in João Pessoa, Brazil, among 78 patients in ICU; which shows only the class of anti-depressants/antianxiety drugs was statistically associated (p = 0.030) to the presence of PU [2].

Study in two teaching hospitals in Philadelphia, USA; use of medications in the sedative class (which included sedatives, anxiolytics, and sedating antihistamines) was associated with a higher risk of pressure ulcers, although the OR was not significant. (OR 1.6; 95% CI, 0.96–2.7) [32].
Cross-sectional study conducted in Wolaita Sodo University Teaching Hospital; patients with Antidepressants medication 6 times more likely develop pressure ulcer than not taken antidepressant medication [24].

2.2.3.4. Medical Device related Factors

Cross-sectional point prevalence studies conducted at The Nebraska Medical Center; those patients with medical devices were 2·4 times more likely to develop a pressure ulcer of any kind [19].

2.2.4. Patient Related Factors

2.2.4.1. BMI

a population-based study from 15 general and tertiary care hospitals, in USA, Patients with BMI <19 kg/m^2 reported a higher risk of PU (OR=3·07; 95% CI: 2·41, 3·91), but a lower risk in the BMI 25–30 (OR= 0·65; 95% CI: 0·53, 0·80) and ≥30 (OR= 0·52; 95% CI: 0·42, 0·64) [30]. study at a large private general hospital located in São Paulo, BMI and the development of PU were not statistically significant (p>0.05) [31].

2.2.4.2. Edema

Study in University Hospital João Pessoa, Brazil; PU statistically not associated with presence of Edema (p > 0.005) [2].

2.2.4.3. Level of Consciousness

The cross sectional, quantitative study in University Hospital João Pessoa, Brazil; PU was statistically associated with the level of consciousness (p = 0.004) [2].

2.2.4.4. Patient Diagnosis

Cross sectional study in Wolaita Sodo Hospital south Ethiopia; PU significantly associated with Diabetes (AOR=4.116;95% (CI=2.135,6.884) [24].

2.2. Conceptual Framework

Developed during Literature review; variables of interest arranged on Socio-demographic Factors (Age, Gender, Educational status), Braden Risk Factors (sensory perception, Moisture, Activity, Friction/shear, mobility, and Nutrition), patient Related factors (BMI, Edema, Level of Consciousness, and Patient Diagnosis), and Service related Factors (Position Change, length of Hospital stay, Medical device, and Drug Profile) for these arrangement boxes consider as factor; all boxes to wards outcome Variable to explore their relationship [23,2,14,19,32](Fig 1).

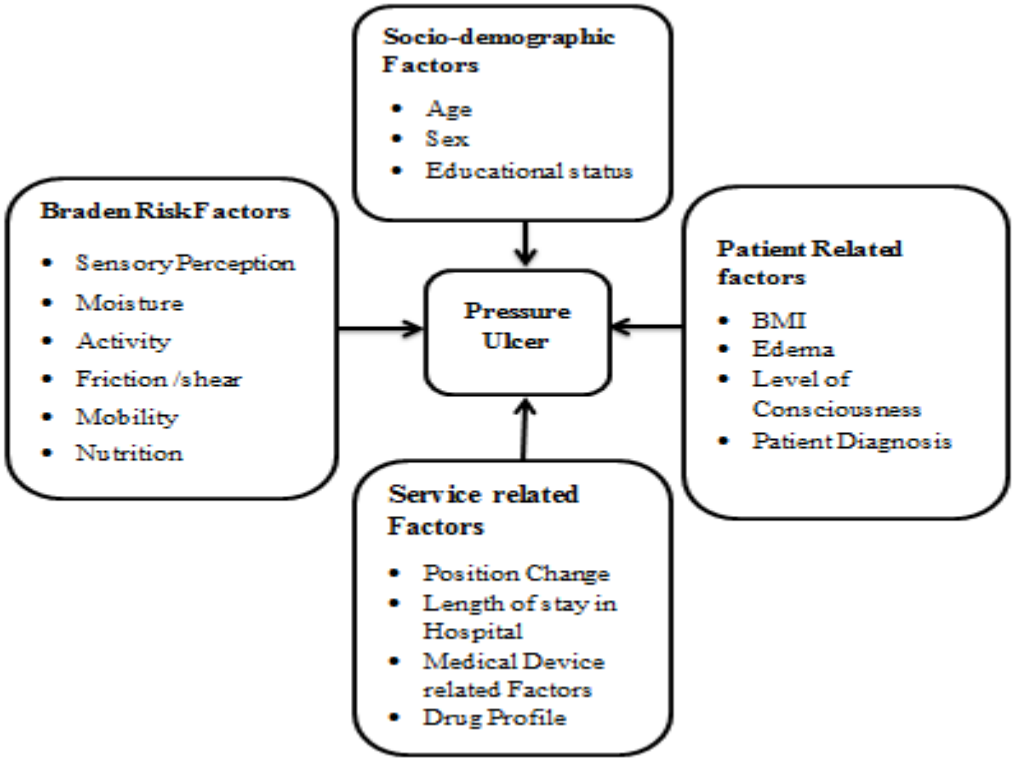

Figure 1: Conceptual frame work developed after reviewing different literatures.

2.3. SIGNIFICANCE OF THE STUDY

This study finding would provide a way for hospitals to benchmark their facilities against national prevalence rates as well as to track their progress own institution time to time. The finding of this study will benefit for the following Hospital community:

Patients

As the customer of the Hospitals, the finding of this study will help receive Quality of Nursing care and Preventive Measure on pressure ulcer.

Nurses

The finding will help nurses to understand Pressure ulcer and to take measures in Prevention of its occurrence.

Hospitals

It may serves Evaluating service provided, and development of Guide line for the treatment and Prevention of Pressure Ulcer.

Profession

The study result may be used as an additional source for feature research.

CHAPTER THREE: OBJECTIVES

3.1 General objective

To Assess prevalence of Pressure Ulcer And Associated Factors Among Hospitalized Adult Patients in selected public hospitals, sidama Zone, South Nations, and Nationalities Peoples' Regional State, Ethiopia, 2017.

3.2 Specific objective

1. To determine prevalence of pressure ulcer among hospitalized adult patients in selected public hospitals, sidama Zone, South Nations, and Nationalities Peoples' Regional state, Ethiopia, 2017.

2. To identify factors associated of pressure ulcer among hospitalized adult patients in selected public hospitals, sidama Zone, South Nations, and Nationalities Peoples' Regional, State Ethiopia, 2017.

CHAPTER FOUR: METHOD AND MATERIALS

4.1. STUDY AREA AND PERIOD

The study was conducted in public hospitals sidama Zone, from March13-April 12, 2017

Sidama zone is bordered in the south with Oromia region and Gedeo, in the West Bilate River which separate from North omo, and in the north and East by Oromia region. The administrative center for Sidama Zone is Hawassa; other town Includes Yirgalem, Wendo Genet, and Chuko. Hawassa is Located at the eastern shore of Lake Hawassa 276 KM to south of Addis Abeba. Sidama zone has a population of 3,232,306 people in 23 districts with three city administrations. There were eleven hospitals found in sidama zone; Namely Hula Primary Hospital, Kebado Primary Hospital, Hawassa Comprehensive specialized Hospital, Yaye Primary Hospital, Adare General Hospital, Bona General Hospital, Daye Primary Hospital, Dore Bafano Primary Hospital, Yirgalem General Hospital, Chire Primary Hospital, and Leku Primary Hospital around 994 health care professionals.

Hawassa University comprehensive specialized Hospital (HUCSH), has 400 beds average of 65,000 peoples seen per year. This teaching hospital has 341 health care workers. In terms of Human power senior Physicians, General practitioners, Pharmacist, Laboratory Technicians, Nurses & Radiographers of 36, 30, 25, 32, 209 & 9 respectively.

Adare General Hospital is found center of the city under Hawassa city administration which is up graded from health center in 2004 EC and it has limited health professionals and hospital setting. has 131 beds, total of 365 Human power which includes 34 Nurses BSc, Nurses Diploma 83, Health Officer 6, General practitioners 22, Senior Physicians 4, Pharmacist 8, Pharmacy Technician 9, Lab technician 12, Lab technologist 12, Radiologist 1, and X-Ray technician 6.

Yirgalem General Hospital is found in sidama zone Dalle District, was built 1958 E.c by Norwegian king IV the total bed of the hospital 171, with total of 287 Human power, 60 Nurses, health officer 5, General practitioners16, Senior Physicians 8, Clinical Pharmacist 2, Pharmacist 8, Pharmacy technician 19, and X-Ray Technician 6.

Leku Primary Hospital it is primary hospital, found in sidama zone Shebedino District, with the total of 66 beds, 149 Human powers which includes 52 Nurses, Midwifes 11, Health Officer 5, GP 8, Lab Technologist and Lab technicians 12, Pharmacist 3, pharmacy technician 4, and x-ray technician 2.

4.2. Study design

Institution based cross sectional quantitative study design was employed

4.3. Population:

4.3.1. Source Population:

All hospitalized Adult patients in Sidama Zone public hospitals.

4.3.2. Study Population

Sampled adult patients whose age greater than or equal to 18 years were admitted in Medical, Surgical, Obs/Gyn, & ICU Wards in selected public hospitals in sidama Zone

4.3.3. Study Unit

Individual Patients who were admitted on beds medical, surgical, Oby/Gyn & ICU wards

4.4 Inclusion and exclusion criteria

4.4.1. Inclusion Criteria

Adult Patients who were admitted in Medical, surgical, Oby/Gyn, and ICU Greater than or Equal to 24 Hours

4.4.2. Exclusion criteria

Patients who developed pressure ulcer before admission.

4.5. Sample size and Sampling technique

4.5.1. Sample size

Sample size was determined by using single population proportion formula; the prevalence of pressure ulcers 16.8%.which was taken from Haileyesus Gedamu et al. done at Felegehiwot Referral Hospital, Bahir Dar, Ethiopia [23].

(n) Sample size at a Z-value of 1.96 with 95% CI and d of 5%:

$$n = \frac{(z\,\alpha/2)\,2\;\rho(1-p)}{d^2}$$

Where,

Z= 1.96, the confidence limits of the survey result (value of Z at α/2 or critical value for normal distribution at 95% confidence interval).

P= 0.168, the proportion pressure ulcer

d= 0.05, the desired precision of the estimate

n= the total sample size.

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

$$n = 214.8$$

$$n = 215$$

Considering a 10% nonresponse rate, the total sample size

$$215 \times \frac{10}{100} = 21.5,\ 215 + 21.5 = 237$$

sample size taken and calculating design effect (1.5) the final sample size was 356; Therefore, 356 patients was included in this study from selected public hospitals in sidama Zone Finally, the number of patients participating in each hospital was determined using the Probability Proportional to Size (PPS).

$$n = \frac{nf \times N}{N\ total}$$

Where, n = Proportion of patient participate in the study in a given public hospital, nf = Final sample size (356), N=is the number of patient beds in medical, surgical, Oby/Gyn and ICU of each public hospital; N *total* = Total number of patient beds in all selected public hospitals (412) i.e. (1) Hawassa comprehensive Specialized Hospital=159, (2) Adare General Hospital=80, (3) Yirgalem General Hospital= 135, (4) Leku Hospital=38.

1. Hawassa comprehensive Specialized Hospital = 356 x 159/412 = 137
2. Adare General Hospital =356 x 80/412 = 69
3. Yirgalem General Hospital =356 x 135/412 = 117
4. Leku Hospital =356 x 38/412 = 33

4.5.2. Sampling technique

Multi stage sampling technique was used to identify four Public Hospitals from Eleven in sidama Zone and total sample size was distributed to each wards and Hospitals Proportionately then in order to get individual Participants Random method was employed by using Registration Book as sampling Frame.

Simple Random sampling (Lottery method) technique was employed to select four hospitals from eleven hospitals in sidama Zone; therefore Leku, Adare, Yirgalem and Hawassa comprehensive specialized hospital was selected.

Probability Proportional to Size (PPS) was applied to get the total number of study participants from each hospital (Hawassa comprehensive Specialized Hospital 41, 46, 43,& 7 medical, surgical, Oby/Gyn & ICU wards respectively); Adare General Hospital 24, 28, & 17; medical, surgical & Oby/Gyn wards respectively; Yirgalem General Hospital 41, 49, 22 & 5; medical, surgical, Oby/Gyn & ICU wards respectively) and Leku Hospital 10, 10, and 13; medical, surgical and Oby/Gyn wards respectively.

Simple Random sampling (Lottery method) was employed to obtain the individual participants from each ward by using Registration book as sampling frame obtained from case team leader; as illustrated in Figure 2

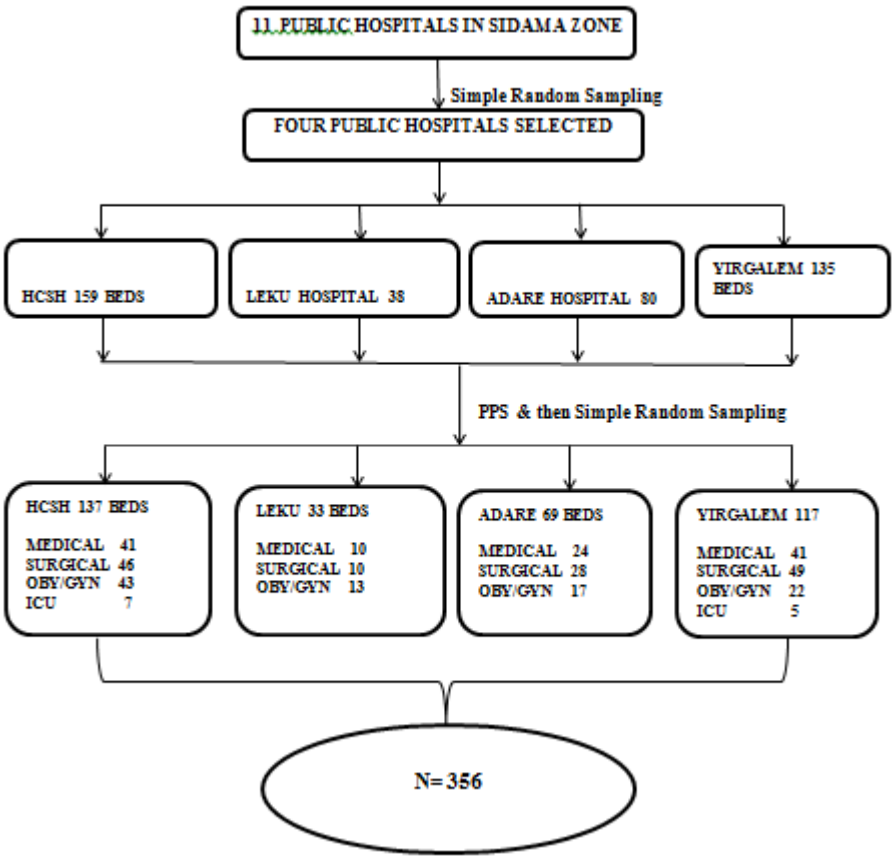

Figure 2: Schematic Presentation of Sampling Procedure for Prevalence of pressure ulcer and associated factors among Hospitalized Adult Patients in selected Public Hospitals in Sidama Zone, SNNPR, Ethiopia, 2017(n=356)

4.6. Study Variables

4.6.1. Dependent Variable

- ☞ Pressure Ulcer

4.6.2. Independent Variables

- ☞ Socio demographic factors
  - ➢ Age
  - ➢ Sex
- ☞ Braden Risk Factors
  - ➢ Sensory perception
  - ➢ Moisture
  - ➢ Activity

- Friction /Shear
- Mobility
- Nutrition

☞ Service Related Factor

- Position change
- Length of stay in hospital
- Drug Profile
- Medical device related Factor

☞ Patient Related Factors

- BMI
- Edema
- Level of Consciousness
- Patient diagnosis

4. 7. Data collection procedures

Respondents information (such as age, Place of residence, Marital status, Educational status, Religion, Length of Hospital stay, and Evidence of prescribed turning position schedules, Edema, BMI, Presence of pressure ulcers) collected through interview, document review and physical examination techniques from head to toes. The tool is developed after reviewing different Literature [2,7,14,19,21,23,24] and the Braden Pressure Ulcer Risk Assessment scale Adopted from Barbara J. Braden (33). The Structured Questionnaire contain three section part I, socio-demographic Question which contain 6 question, Part II , Patient and Service Related,17 questions and Part III Braden risk assessment tool which has 6 item (sensory perception, skin moisture, activity, mobility, nutrition, and friction/shear[33]. The first five scale scored from 1-4 and sixth subscale 1-3. Total scores ranges from 6-23.with cutoff <17 risk for PU and no risk of pressure ulcer at Braden score ≥17 [14]. A lower Braden Scale Score indicates a lower level of functioning and, therefore, a higher level of risk for pressure ulcer development [34].

The data was collected by 6 trained Degree nurses and were supervised by 2 MSc nurses who have had previous experience in data collection. Continuous follow-up and supervision was performed by principal investigator throughout the data collection period. The Braden Scale has demonstrated a high degree of inter-rater reliability between 0.99 and 0.83. In terms of predictive validity, the Braden Scale has demonstrated sensitivities that range from 70% to 100% and specificities ranging from 64% to 90%. The tool has been shown to be equally reliable with Black and White patients [14,33,34,35].

In this study reliability of the tools were assessed by Cronbach's alpha; the internal consistency was 0.89.

4.8. Operational definitions

- **BMI** calculate as body mass (kg)/square of height (m^2); underweight, less than 18.5 kg/m^2; normal range, 18.5–24.99 kg/m^2; overweight, 25–29.99 kg/m^2; obese, greater than or equal to 30 kg/m^2
- **Bedfast**: patients unable to get out of bed.
- **Braden Risk assessment Scale cut of Score:-** a cut-off score of less than 17 identified as risk for developing pressure Ulcers, whereas score ≥17–23) No risk for Pressure Ulcers [14].
- **Unconscious Patients:-** patient who admitted in Hospitals with loss alertness, not know what time is it, who is he/she and where is he/she.
- **Prevalence** calculated as the number of persons with a pressure ulcer divided by the number of persons assessed, and data are expressed as percentage.
- **Routine:-** patient develop pressure ulcer on prominent body area such elbow, shoulder area, occiput, heel, greater trochanter, and ischium
- **Suspected Deep Tissue Injury:-** Purple or maroon localized area of discolored intact skin or blood-filled blister due to damage of underlying soft tissue from pressure and/or shear. The area may be preceded by tissue that is painful, firm, mushy, boggy, warmer or cooler as compared to adjacent tissue.
- **Stage I:-** Intact skin with non-blanchable redness of a localized area usually over a bony prominence. Darkly pigmented skin may not have visible blanching; its color may differ from the surrounding area.
- **Stage II:-** Partial thickness loss of dermis presenting as a shallow open ulcer with a red pink wound bed, without slough. This may also present as an intact or open/ruptured serum-filled blister.
- **Stage III:-** Full thickness tissue loss. Subcutaneous fat may be visible but bone, tendon or muscles are not exposed. Slough may be present but does not obscure the depth of tissue loss.
- **Stage IV:** Full thickness tissue loss with exposed bone, tendon or muscle. Slough or eschar may be present on some parts of the wound bed. Often include undermining and tunneling.
- **Unstageable:** Full thickness tissue loss in which the base of the ulcer is covered by slough (yellow, tan, gray, green or brown) and/or eschar (tan, brown or black) in the wound bed.

- **Suspected Deep Tissue Injury:** Depth Unknown but Purple or maroon localized area of discolored intact skin or blood-filled blister due to damage of underlying soft tissue from pressure and/or shear
- **Chair fast**: ability to walk severely limited or non-existent. Cannot bear own weight and /or must be assisted in to chair or wheelchair.
- **Completely limited**: unresponsive (does not moan, flinch or grasp) to painful stimuli, due to diminished level of consciousness or sedation or limited ability to feel pain over most of the body.
- **Very limited**: responds only to painful stimuli. Cannot communicate discomfort except by moaning or restlessness or has a sensory impairment which limits the ability to feel pain or discomfort over ½ of body**.**
- **Slightly limited**: respond to verbal commands, but cannot always communicate discomfort or the need to be turned or has some sensory impairment which limits ability to feel pain or discomfort in one or two extremities.
- **No impairment**: responds to verbal commands. Has no sensory deficit which would limit ability to feel or voice pain or discomfort.

4.9. Data analysis

The data was entered in to EPI- data version 3.1, and then the data was edited, cleaned, and coded and analyzed by using Statistical Package for Social Science (SPSS) version 20 statistical software. Descriptive statistics; frequencies and percentages was done and presented in table, figure, and graph. Binary logistic regression was used to identify the statistical association between pressure ulcer and independent variables using, OR, 95% CI and p-value of less than 0.25. Multiple logistic regression models was fitted to control the possible effect of confounders and finally the variables which had independent association with pressure ulcer was identified on the basis of AOR, with 95%CI and p-value less than 0.05. The variables were entered to the multivariate model using the Backward LR regression.

4.10. Data quality control

Data quality was ensured during collection, coding, entry and analysis. Training was given to the data collectors and supervisors to prevent any confusion and have a common understanding about the study. Pretest was conducted 10% of study participants at Dilla University Teaching Hospital; based on the pretest, questions were revised, edited, and those found to be unclear was removed

by investigator. Supervision of data collectors and observation of how the data collectors were collected data was done by supervisors. The data collectors were instructed to write Medical record number on the Questionnaires during the data collection so that any identified errors was traced back using the Medical record number. The filled Questionnaires were checked for completeness by data collectors, supervisors and Principal investigator on a daily basis. Consequently, any problem encountered was discussed among the team and solve immediately.

4.11. Ethical consideration

Ethical clearance and approval for the study was obtained from institutional review board (IRB) of Jimma University, institute of health. An official letter of cooperation was given to Hawassa Comprehensive specialized hospital, Adare General Hospital, Yirgalem General Hospital, Leku primary Hospital, Dilla University Teaching Hospital (neighboring to study zone) and an official letter of permission was provided to the head of Medical, surgical and Oby/Gyn wards for the utilization of patient cards and to conduct physical examination. The purpose and importance of the study was explained to each study participants and written or oral consent was obtained from patients and/or relatives. To ensure confidentiality of participant's information, anonymous typing was applied where by the name of the participant and any identified of participants were not be written on the questionnaire. Participant was interview and Examine alone to keep the privacy. Respondents who are not willing to be involved in the study and those who want to stop interview at any time were allowed to do so. The instruments were translated from English into Amharic language by experts, reviewed by a group of researchers for meaning, clarity and cultural appropriateness, and back-translated into English for verification.

4.12. Dissemination Plan

The findings will be present to Jimma University, Institute of health, and Faculty of health science, School of Nursing, and midwifery. The copy of the result will be submitted to four public hospitals; also I will try to disseminate through presentation on conferences and publication on scientific journals.

CHAPTER FIVE: RESULT

5.1. Socio-Demographic Data

A total of 356 admitted patients in four Hospitals in Sidama Zone were Participated in the study and all of them gave their response. Above half of study respondents 212(59.6%) were found age between18-39, whereas 30(8.4%) were age between70-89.

In general, the study patients predominantly 267(75.0%), 230(64.6%), 218(61.2%), and 200(56.2%) were married, Rural residents, Females in sex and Protestant in Religion respectively; furthermore 112 (31.5%) of the respondents were not Educated (**table1**).

Table 1: Socio demographic Data of the Participants of Public Hospitals in Sidama Zone, SNNPR, Ethiopia, 2017 (n=356)

Variables	Frequency (n)	Percent (%)
Numbers of Institution		
Hawassa Comprehensive Specialized Hospital	137	38.5
Adare General Hospital	69	19.4
Yirgalem General Hospital	117	32.9
Leku Primary Hospital	33	9.3
Age		
18-39 Age	212	59.6
40-69 Age	114	32.0
70-89 Age	30	8.4
Residence		
Urban	126	35.4
Rural	230	64.6
Sex		
Male	138	38.8
Female	218	61.2
Religion		
Protestant	200	56.2
Orthodox	92	25.8
Muslim	57	16.0
Catholic	7	2.0
Marital Status		
Single	82	23.0
Married	267	75.0
Divorced	5	1.4
Widowed	2	0.6
Educational Status		
Cannot read and write	112	31.5
Only read and write	52	14.6
1-8 Grade	106	29.8
9-12 Grade	54	15.2
12+ Grade	32	9.0

5.2. Patients and services related information

Majority patients 309 (86.8%) who admitted in four Public Hospitals in sidama Zone were stayed more than or equal to 6 days. About 135(37.9%) Participants were admitted in Surgical ward, followed by medical 113 (31.7%) and ICU 12(3.4%). It was found that 290(81.5%), 225(63.2%), and 160(44.9%) patients were conscious, had no turning position Schedule, and BMI between 18.5-24.99kg/m^2 respectively. Majority of Patients 310 (87.1%), 347(97.5%), and 131(36.8) were Used Medical device, patient with medication and Patient diagnosis with Sepsis Respectively (Table 2).

Table 2: Patients and Services Related Information of the Participants in Public Hospitals in Sidama Zone, SNNPR, Ethiopia, 2017 (n=356)

Variables	Frequency (n)	Percent (%)
Length of Hospital Stay		
<6 Days	47	13.2
>=6 Days	309	86.8
Patients Ward		
Medical	113	31.7
Surgical	135	37.9
Gynecology	96	27
ICU	12	3.4
Level of consciousness		
Unconscious	66	18.5
Conscious	290	81.5
Evidence of turning Position		
No	225	63.2
Yes	131	36.8
Patient Body mass index		
<18.5kg/m2	134	37.6
18.5-24.99kg/m2	160	44.9
25-29.99kg/m2	62	17.4
Patient with Medical device		
No	46	12.9
Yes	310	87.1
Patient with Medication		
No	9	2.5
Yes	347	97.5

Patient Diagnosis		
Diabetes Mellitus	20	5.6
Different types of infection	131	36.8
Respiratory Disease	22	6.2
Anemia	19	5.3
Hypertension	22	6.2
Heart Disease	8	2.2
Stroke	5	1.4
Fracture	15	4.2

5.3. Braden risk assessment scale Information

From the total Participants 302 (84.8%) were at risk for Pressure ulcer development with Braden total score Less than 17. Out of the total Participants 118 (33.1%) had slightly limited in sensory perception, and, 69 (19.4%) had Occasionally Moist. From the total participants 52 (14.6 %) were completely immobile. 229 (64.3%) participants were probably inadequate in nutrition, and 168 (47.2%) of the patients had problem in Friction & Shear (Table 3).

Table 3: Braden Scale Pressure Ulcer Risk Assessment of the Participants in Public Hospitals in Sidama Zone, SNNPR, Ethiopia, 2017 (n=356)

Variable		Frequency	Percentage
Sensory perception	Completely limited	40	11.2
	Very limited	38	10.7
	Slightly limited	118	33.1
	No impairment	160	44.9
Moisture	Constantly moist	2	0.6
	Very moist	5	1.4
	Occasionally moist	69	19.4
	Rarely moist	280	78.7
Activity	Bedfast	109	30.6
	chair fast	76	21.3
	walks occasionally	117	32.9
	walks frequently	54	15.2
	completely immobile	52	14.6

Mobility	very limited	90	25.3
	slightly limited	167	46.9
	no limitation	47	13.2
Nutrition	very poor	76	21.3
	probably inadequate	229	64.3
	Adequate	40	11.2
	Excellent	11	3.1
Friction and shear	Problem	168	47.2
	potential problem	125	35.1
	no apparent problem	63	17.7

5.4. Prevalence of Pressure Ulcers

A total of 56 (15.7%) patients were developed pressure ulcer from 356 who were admitted in four public Hospitals in Sidama Zone; Out of the overall prevalence Hawassa comprehensive Specialized Hospital, Yirgalem Hospital, Adare Hospital, and Leku Hospital were accounts 16.8%(23), 16.2% (19), 15.9%(11), and 9.1% (3) respectively (figure 6). Out of those who developed Pressure Ulcer 34(9.6%), 16(4.5%), and 6 (1.7%), and were due to Routine, Both Types, and Medical Device Related Pressure Ulcer respectively (figure 4). Based on EPUAP grading scale; 21(5.9%), 26 (7.3%), 4 (1.1%), and 5(1.4%) patients developed stage I, stage II, stage III, and stage (stage IV) pressure ulcer respectively. In terms of anatomical location 20(5.6%), were developed on Sacral area, and 16(4.5%) on Shoulder; Furthermore 7(2.0%), where at Hand& lips 13(3.6%), Greater trochanter, Heel, Leg, Nose, ear, Neck, Elbow, Other area (Occipital) (Table 4).

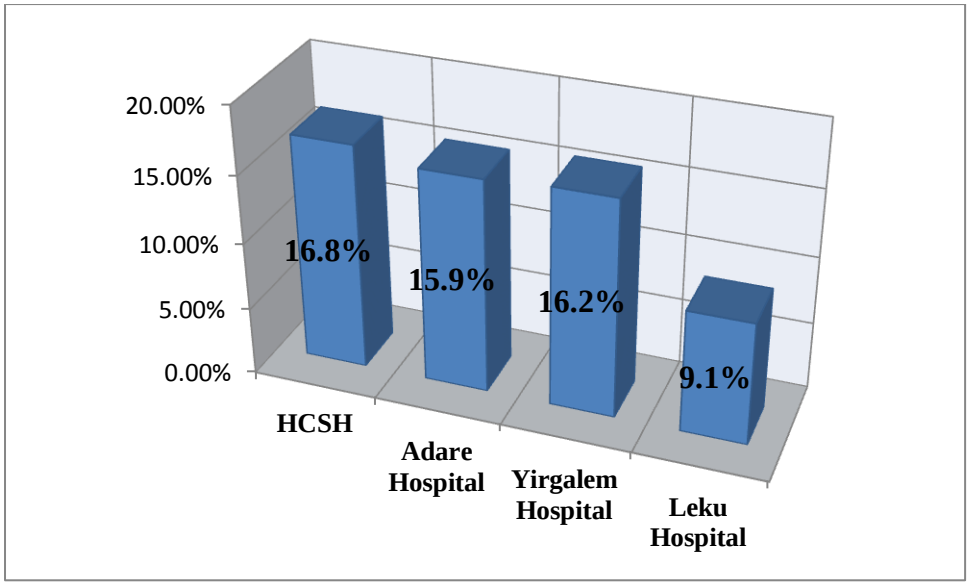

Figure 3: Distribution of Pressure Ulcer Prevalence in Public Hospitals in Sidama Zone, SNNPR, Ethiopia, Ethiopia, 2017(n=356)

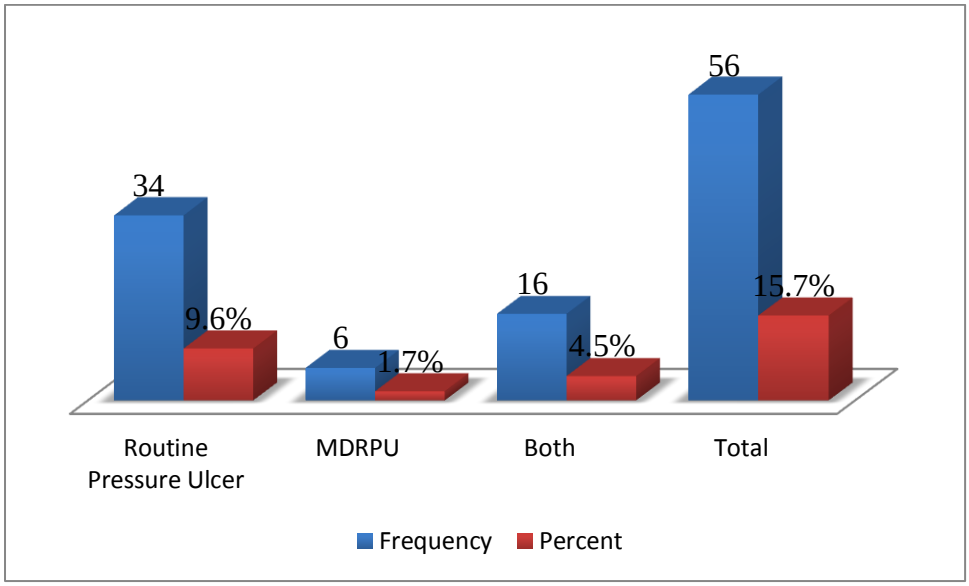

Figure 4: Types of pressure ulcer distribution among study Participants Public Hospital in Sidama Zone, SNNPR, Ethiopia, 2017(n=356)

Table 4: Frequency and percentage of Anatomical Location and stage of Pressure Ulcer in Public Hospitals in Sidama Zone, SNNPR, Ethiopia, 2017 (n=356)

Variable		Frequency	Percentage
Stages of Pressure Ulcer	Stage I	21	5.9
	Stage II	26	7.3
	Stage III	4	1.1
	Stage IV	5	1.4
Anatomical Location Pressure Ulcer	Sacral	20	5.6
	Shoulder	16	4.5
	Hand & Lips	7	2
	Greater trochanter, Heel, Leg, Nose, ear, Neck, Elbow, Other area(Occipital)	13	3.6

5.4.1. Prevalence Medical device related pressure ulcers

The Overall Prevalence Pressure ulcers was 56 (15.7%) from which MDRPU which account 6 (1.7%). From this; Hand and Lips 3 (50%), leg 2(33.3%), and Nose, Ear and Neck 1(16.7%). Based on EPUAP stage 3(50%) were stage I and 3(50%) stage II.

5.4.2. Pressure Ulcer and Socio-Demographic Data

Pressure ulcer more prevalent 27(23.7%) were age range between 40-69 years, 27(19.6) in male respondents, 20(17.9%) who cannot read and write, and 20 (17.9%) grades between1-8, the prevalence of pressure ulcer was higher in male than in female respondents. The reason might be male were low in Numbers than females.

Table 5: Prevalence of Pressure Ulcer and Socio-Demographic Data of the Participants in Public Hospitals in Sidama Zone, SNNPR, Ethiopia, 2017 (n=356)

Variables		Patients develop pressure Ulcer			
		NO		Yes	
		No	Percent (%)	No	Percent (%)
Patient Age	18-39	188	88.7	24	11.3
	40-69	87	76.3	27	23.7
	70-89	25	83.3	5	16.7
Sex	Male	111	80.4	27	19.6
	Female	189	86.7	29	13.3
Residence	Urban	105	83.3	21	16.7
	Rural	195	84.8	35	15.2
Education	Can't read & write	92	82.1	20	17.9
	Only Read & write	49	94.2	3	5.8
	1-8 grade	86	81.1	20	17.9
	9-12 grade	43	79.6	11	20.4
	12+	30	93.8	2	6.2

5.4.3. Pressure Ulcer with Patients and services related Variables

Majority of admitted patient in Public Hospital 160(44.9%) of them were BMI in between 18.5-24.99 kg/m^2 and pressure ulcer more prevalent 33(24.6%) of BMI <18.5kg/m^2. From the total admitted patients 309(86.8%) were stayed greater than or equal to six; from which 55(17.8%) of the Participant develop pressure ulcers. Most of 276 (77.5%) of patient have no edema; 21(26.2%) Patient develop pressure ulcer with Edema.

Majority of the patient admitted in Public hospitals 290 (81.5%) were conscious; the prevalence of pressure ulcer 16(24.2%) increased in unconscious patients. Majority of hospitalized patients 225(63.2%) had no evidenced position change schedule; and from those no position change 44(19.6%) of them develop pressure ulcers.

Majority of patients 135(37.9%) were admitted in surgical ward; the least were 12(3.4%) in ICU and which was the most prevalent Unit in the Wards.

Table 6: Distribution Pressure Ulcer with Patients and services related Variables in Public Hospitals in Sidama Zone, SNNPR, Ethiopia, 2017 (n=356)

Variables		Patients develop pressure Ulcer			
		NO		Yes	
		No	Percent (%)	No	Percent (%)
BMI	<18.5 kg/m^2	101	75.4	33	24.6
	18.5-24.99 kg/m^2	140	87.5	20	12.5
	25-29.99 Kg/m^2	59	95.2	3	4.8
Edema	No	241	87.3	35	12.7
	Yes	59	73.8	21	26.2
Patient levels of consciousness	Unconscious	50	75.8	16	24.2
	Conscious	250	86.2	40	13.8
Patient diagnosis	Diabetes Mellitus	287	85.4	49	14.6
		13	65	7	35
	Sepsis	186	82.7	39	17.3
		114	87	17	13
	Respiratory Disease	282	84.4	52	15.6
		18	81.8	4	18.2
	Anemia	283	84	54	16
		17	89.5	2	10.5
	Hypertension	285	85.3	49	14.7
		15	68.2	7	31.8
	Heart Disease	293	84.2	55	15.8
		7	87.5	1	12.5
	Stroke	297	84.6	54	15.4
		3	60	2	40
	Fracture	290	85	51	15
		10	66.7	5	33.3
Position change	No	181	80.4	44	19.6
	Yes	119	90.8	12	9.2
Length of Hospital stay	<6 days	46	97.9	1	2.1
	>= 6 days	254	82.2	55	17.8
Wards	Medical	87	77	26	23
	Surgical	118	87.4	17	12.6
	Gyn	91	94.8	5	5.2
	ICU	4	33.3	8	66.7
Medical device	No	43	93.5	3	6.5
	Yes	257	82.9	53	17.1
Drug Profile	Antimicrobial	115	79.3	30	20.7

	No Yes	185	87.7	26	12.3
	Antihypertensive	283	85.5	48	14.5
	No Yes	17	68	8	32
	Analgesics	253	83.2	51	16.8
	No Yes	47	90.4	5	9.6
	Antidepressant	290	84.3	54	15.7
	No Yes	1	33.3	2	66.7
	Ant diabetics	296	85.7	48	14.3
	No Yes	4	33.3	8	66.7

5.5. Factors Associated with Pressure Ulcer

Independent variables analyzed in logistic regression with Outcome variable of pressure ulcer to identify their association. Those variables which were significant at ≤ 0.25 entered into multiple logistic regressions. A multiple logistic regression identified that Position change; BMI, bedfast Activity, very limited mobility, occasionally moist, friction and shear, and Antimicrobial were significantly associated with the development of pressure ulcer.

Study Patients who had No Position change schedule were 4.3 times (95% CI: AOR, 4.346 (1.646 – 11.473; P= 0.003) more likely to develop Pressure ulcer than Patients who had position change.
Those Patients who had Body mass index of Less than 18.5kg/m^2 were 6.9 times (95% CI: AOR, 6.912(1.307,36.554) more likely to develop pressure Ulcers than Patients who had BMI in between 25-29.99kg/m^2.
Patients who had occasionally Moist were 4.7 times (95% CI: AOR, 4.734(1.999, 11.234) more risk to develop Pressure ulcer than those rarely Moist skin.

Patients who were bed fast in activity 13.4 times (95% CI: AOR, 13.365(1.622, 110.138) more risk to develop Pressure Ulcer than those who walks frequently.
Those Patients who had very limited in Mobility were 10.7 times (95% CI: AOR, 10.661 (1.256, 90.494) more likely risk to develop pressure Ulcer than Participant who had no limitation in mobility.
Patients who had Problem for friction and shear were 5 times (95% CI: AOR, 5.002(1.024, 24.445) more likely to develop pressure ulcer than Patient who had no apparent problem.

Patients who had not taken antimicrobial medications were 2.4 times (95% CI: AOR, 2.36 (1.025, 5.423) more likely to develop pressure Ulcer than patients with antimicrobial medications.

Table 7: Parameter estimates from Logistic Regression model predicting pressure ulcer in Public Hospitals Sidama Zone, SNNPR, Ethiopia, 2017 (n= 356).

Variables		Pressure Ulcer		COR(95%CI	AOR(95% CI)	P-Value
		No	Yes			
Position Change	No	181	44	2.411(1.223,4.75*	4.346(1.646,11.47)	0.003**
	Yes	119	12	1	1	
BMI	<18.5kg/m^2	101	33	6.426(1.888,21.869)*	6.912(1.307,36.554)	0.023**
	18.5-24.99kg/m^2	140	20	2.810(0.804,9.81)	3.379(0.631,18.10)	0.155
	25-29.99kg/m^2	59	3	**1**	**1**	
Moisture	constantly moist	0	2	1.567(0.55,4.47)*	0.313(0.084,10.52)	0.341
	very moist	0	5	3.57(0.033,3.92)*	4.95(0.029-8.341)	0.143
	occasionally moist	47	22	4.386(2.305,8.34*	4.739(1.999,11.23)	0.001**
	rarely moist	253	27	**1**	**1**	
Activity	Bedfast	80	29	19.21(2.540,145.33)*	13.36(1.62,110.13)	0.016**
	Chairfast	66	10	8.030(0.996,64.74)*	6.246(0.66, 58.363)	0.108
	walks occasionally	101	16	8.396(1.084, 65.054)*	5.175(0.59, 44.701)	0.135
	walks frequently	53	1	1	**1**	
Mobility	completely immobile	44	8	8.364(1.004 69.647)*	5.708(0.539, 60.48)	0.148
	very limited	71	19	12.310 (1.593,95.127) *	10.66(1.256,90.49)	0.030**
	slightly limited	139	28	9.266(1.226,70.014)*	7.804(0.945, 64.46)	0.056

	no limitation	46	2	1	**1**	
friction and shear	Problem	130	38	8.915(2.083,38.1*	5.002(1.024,24.44)	0.047**
	potential problem	109	16	4.477(0.996,20.1)*	3.322(0.639,17.27)	0.154
	no apparent problem	61	2	**1**	**1**	
Antimicrobial	No	115	30	1.856(1.045,3.297)*	2.36(1.025, 5.423)	0.044**
	Yes	185	26	**1**	**1**	
Patients age	18-39 Age	188	24	**1**	**1**	
	40-69 Age	87	27	2.431(1.327,4.45)*	0.654(0.170,2.518)	0.537
	70-89 age	25	5	1.567(0.548,4.47)	1.469(0.379,5.693)	0.578
Patient Gender	Male	111	27	1.585(0.89,2.815)*	1.251(0.555,2.824	0.589
	Female	189	29	**1**		
Educational Status	cannot Read & write education	92	20	3.261 (0.720,14.773)*	0.940(0.127,6.959)	0.951
	only read and write	49	3	0.918 (0.145,5.817)	0.289(0.022,3.866)	0.348
	1-8 grade	86	20	3.488 (0.769, 15.819)*	1.295(0.179,9.388)	0.798
	9-12 grade	43	11	3.837 (0.793, 18.576)*	1.069(0.122,9.371)	0.952
	12+ grade	30	2	**1**	1	
Patients LOC	Unconscious	50	16	2.000(1.039,3.84*	1.632(0.587,4.540)	0.348
	Conscious	250	40	**1**	**1**	
Length Hospital stay	<6 days	46	1	**1**	1	
	>=6 days	254	55	9.961(1.345,73.783)*	0.143(0.017,1.176)	0.070
Diabetes Mellitus	No	287	49	**1**	**1**	
	Yes	13	7	3.154(1.199,8.299)*	1.182(0.210,6.662)	0.850
Hypertension	No	285	49	**1**	**1**	
	Yes	15	7	2.714(1.053,6.99)*	0.433(0.074,2.524)	0.352

Stroke	No	297	54	1	1	
	Yes	3	2	3.667(0..599,22.462)*	0.456(0.033,6.388)	0.560
Fracture	No	290	51	1	1	
	Yes	10	5	2.843(0.933,8.662)*	0.580(0.128,2.631)	0.480
Antihypertensive	No	283	48	1	1	
	Yes	17	8	2.686(1.098,6.571)*	1.390(0.006,306.03)	0.905
Analgesics	No	253	51	1	1	
	Yes	47	5	0.509 (0.193, 1.343)*	1.477(0.282,7.728)	0.644
Antidepressants	No	299	54	0.093 (0.008, 1.045)*	0.219(0.006,7.967)	0.408
	Yes	1	2	1	**1**	
Patient have Edema	No	241	35	**1**	**1**	
	Yes	59	21	2.451 (1.330, 4.517)*	0.531(0.219,1.288)	0.162
Patient with Medical Devices	No	43	3	**1**	**1**	
	Yes	257	53	2.956 (0.884, 9.885)*	0.319(0.078,1.314)	0.114

NB:- * < 0.25 explanatory variables in Bivariate analysis

** statistically significant association P<0.05.

Logistic Regression Method “BACKWARD LR” Was Used For Multivariate Analysis

CHAPTER SIX: DISCUSSION

6.1. General Prevalence of pressure ulcer

One way of measuring the totality of nursing care rendered to the patients is through measuring patient outcome indicators (patient position change, moisture, activity, mobility, BMI, medications, mobility). Pressure ulcer is one of nursing service Outcome indicators. The current study identified the prevalence of pressure ulcer in this study was 15.7% which slightly exceeded than studies done in USA 5.4%, Republic of Ireland 9%, one university hospital and 11 general Hospital in China 1.58%, and University of Malaya, Malaysia; were 15.5 [19,20,14,21]. These differences in prevalence might be different health care setting, and study design. The study conducted in republic of Ireland enrolled 12 Urban and rural long term care Participant whereas this study involved Patients in acute care setting. In addition, the study of Malaya University based on Prospective Observational study but this study was a cross-sectional.

The Prevalence was lower than studies done in Brazil 16.9%, hospitals in Norway 24 %, Nigeria 18.6% and Ethiopia Felegehiwot referral Hospital, Bahir Dar 16.8% [26,25,4,23]. This gap might be due to inclusion of different Level of Hospitals, Patients condition. The study conducted in Nigeria was bed-ridden patients from Medical, Orthopedics, and neurosurgical wards, and study in Ethiopia conducted in one Hospital.

The Overall prevalence of pressure Ulcer was 15.7 from which medical device related pressure Ulcer accounted 1.7%. Which was Lower than study Conducted in USA 34.5% and Saudi Arabia 39.3% [19,29]. This phenomenon can be interpreted with several reasons Variation in study institution, Patients conditions and Numbers of study Participants. Saudi Arabia study which was conducted on Adult Intensive care Unit (ICU) with mechanical ventilation.

In this study Braden pressure ulcer risk assessment tool (moisture, activity, mobility, and Friction and shear) was associated with the development of pressure ulcer.

Skin with occasionally moist significantly associated with pressure ulcer; As the Skin occasionally exposed to Moisture the development of Pressure Ulcer Increased. Similar study reported in Republic of Ireland; moisture are strong significant associated with pressure ulcers development and predictors of pressure ulcer development and study in Debere Markos Referral Hospital; occasionally moist skin were significantly associated with to develop pressure ulcer. [20]. the possible reason might be when skin exposed to moisture ; macerates and weakens the

skin, and start to break and Pressure ulcer can occur; on the other hand moisture favored for bacteria Growth and Multiplication, it irritation liable to pressure Ulcers development.

According to the current study Patients with bed fast in activity significantly associated with pressure ulcer. It was in line with studies conducted Republic of Ireland; it revealed that bed-fast statistically significantly associated with pressure ulcer development, and in Wolaita Sodo Teaching Hospital the Finding Discover that Bed bound in activity were risk for Pressure Ulcer.[20,24]. The reason might be when patient stayed in bed to long time Pressure were created between patient skin and Interface; this will impair microcirculation and delayed oxygen and nutrients to the skin and tissue; Ischemia were resulted and if prompt intervention not taken tissue become necrotize this were lead to pressure ulcer; Meanwhile accumulation of metabolic byproduct deteriorate conditions.

In this study, patients with very limited in mobility were significantly associated with pressure ulcer development. In line with study conducted in Republic of Ireland ($P<0.0001$) it suggests that those very limited in mobility were significantly associated with pressure ulcers, [20]. The Possible reasons might be patients very limited in mobility have problem maintain position, and patient may slide down to the bottom of the bed, this prone for friction and shear.

Patients with problem on friction and shear were significantly associated with pressure ulcer development. Similar studies report in Bahir Dar Ethiopia and Wolaita Sodo teaching Hospital. In Bahir Dar Felegehiwot Referral Hospital result revealed that Problem on Friction and shear were significant association with Pressure Ulcer, whereas Wolaita Sodo result mentioned that Friction and shear were significantly related to Pressure Ulcer development [23,24]. the reasons might be patient who have problem in maintain position might slide down to the bottom of the bed or wheelchair. Patient Skin and support surface move across one anther; the outer layers of the skin remain stable while deep fascia moves with the skeleton, creating problem in the blood vessels and lymphatic system this might end up with pressure ulcer.

Patients who had no schedule for position change significantly associated with Pressure ulcer development. Similar report study conducted in adult intensive care unit Saudi Arabian, Republic of Ireland; participants with existing pressure ulcers had no repositioning care plan this was statistically significant and Wolaita Sodo teaching hospital; absence of change of patient position by the nurse was associated with the development of pressure ulcer. [29,20,24]. The possible

reason might be Patients who were not position every two hours pressure between patient skin and interface were increase.

Patient who were not taken antimicrobial medication more likely develop pressure ulcer than those patient who were adhere with antimicrobial medication; which were significantly associated (P=0.044) with the Pressure ulcer. But this result not inconsistence with study in Sao Paulo, Brazil there was no significant correlation between use or nonuse of medications and the development of pressure ulcers [27]. Reason might be antimicrobial medications were minimize burden of microorganism, decrease hospitalization time, boost individual immunity, hasten wound healing, and prevent further pressure ulcers complications.

Patients with body Mass Index < 18.5kg/m^2 were significantly associated with pressure ulcer. This result in agreement with study conducted in USA (P<0·0001); Patients with BMI in between 25 to <30kg/m^2 were low risk incidence than those with BMI <19kg/m^2, but this result not in line with study in São Paulo, Brazil was not significantly associated with Pressure Ulcer (P>0.05) [30,31]. The reason might be Patients who had BMI < 18.5kg/m^2 had Exposed bony (body) prominent which increased risk for pressure Ulcer.

Strength and Limitations

Strength

Strong side of this study was inclusion of different study area (Hospitals).

Limitations

The result might be better if, longitudinal study design conducted to identify incidence of pressure ulcers.

CHAPTER SEVEN: CONCLUSION AND RECOMMENDATION

7.1 CONCLUSION

Prevalence of Pressure ulcer among Hospitals is high; it expected to be zero; Prevalence varies ward to ward and institution to institution, and among patients. This study found that the mean prevalence of pressure ulcers in Public hospitals in Sidama Zone is 15.7%; from which Medical Device related pressure ulcer which accounts 1.7%. Based on EPUAP grading scale; 5.9%, 7.3 % ,1.1%, and 1.4% patients developed stage I, stage II, stage III and stage IV pressure ulcer respectively. The significant factors were Position change; BMI, Activity, mobility, moisture, Friction and shear and Antimicrobial were significantly associated with the development of pressure ulcer.

7.2. RECOMMENDATION

According to My study finding, I want to recommend

Each Public Hospitals

Hospitals should design pressure Ulcer Prevention strategies such as Risk assessments should be conducted as soon as possible after admission with (Braden Scale) and Conduct a comprehensive assessment for all patients (Clinical history, Pressure injury risk scale, Skin assessment, Mobility and activity assessment)

Provision of training for Nurses on positioning and transferring patients based on Manual handling techniques.

Recommendation to Health care Providers

Hospitalized patient should position every two hours intervals; if health conditions of patients permit.

REFERENCE

1. European Pressure Ulcer Advisory Panel & National Pressure Ulcer Advisory Panel International Guideline Treatment of Pressure Ulcers: Quick Reference Guide; Washington DC, 2009.
2. Sabrina Guimarães Barbosa et.al. **"**Prevalence and Risk Factors for Pressure Ulcer in Hospitalized Adults" International archives of Medicine section: nursing ISSN: 1755-7682 Vol. 9, No. 105, PP.1- 10, doi: 10.3823/1976, 2016.
3. Akbari Sari et al "Rate of Pressure Ulcers in Intensive Units and General Wards of Iranian Hospitals and Methods for Their Detection" Iranian J Publ Health, Vol. 43, No.6, pp. 787-792, 2014.
4. L. M. Awwal et al." Pressure Ulcer Stages among Bed-Ridden Patients in Ahmadu Bello University Teaching Hospital, Zaria- Nigeria" IOSR Journal of Nursing and Health Science Vol. 3, Issue 1 ,Ver. IV, PP. 61-68, 2014.
5. Montalcini et al "Nutritional parameters predicting pressure ulcers and short-term mortality in patients with minimal conscious state as a result of traumatic and non-traumatic acquired brain injury" Transl Med 13:305 DOI 10.1186/s12967-015-0660-4,2015.
6. Richard A. Benoit, Jr. **"**risk factors for pressure ulcer development in critically ill patients" Nursing Science Nashville, Tennessee, 2013.
7. I.M. Bredesen, K. Bjøro, L. Gunningberg, and D. Hofoss" The prevalence, prevention and multilevel variance of pressure ulcers in Norwegian hospitals: A cross-sectional study" International Journal of Nursing Studies, 52 PP. 149–156, 2015.
8. KAREN L. COOPER "Evidence-Based Prevention of Pressure Ulcers in the Intensive Care Unit" American Association of Critical-Care Nurses, Vol. 33, No. 6, PP. 57-66, 2013.
9. Ali M. Al-Shadedi. "Prevalence of Pressure Ulcers in Orthopedic Patients" the Iraqi postgraduate medical journal Vol.11, No.4, PP. 529-535, 2012
10. C. V. Gilder ; S. Amlung; P. Harrison and S. Meyer " Results of the 2008 – 2009 International Pressure Ulcer Prevalence Survey and a 3-Year, Acute Care, Unit-Specific Analysis" Ostomy Wound Management Vol.55 No.11),PP.39–45,2009.
11. Amir Q ; Tanveer P; Melissa S and Thomas D Clinical Guidelines Committee of the American College of Physicians "Risk Assessment and Prevention of Pressure Ulcers: A Clinical Practice Guideline From the American College of Physicians" *Ann Intern Med.* ; Vol. 162, No. 5, PP.359-369, 2015.

12. Australian Wound Management Association. Pan Pacifc Clinical Practice Guideline for the Prevention and Management of Pressure Injury. Cambridge Media Osborne Park, WA, 2012.
13. Rosie Callaghan Wound Care Today Pressure Ulcer Prevention using Strikethrough Resistant Technology. Wound Care Today supplement, PP. 5, 2013.
14. Qixia Jiang.et.al "The incidence, risk factors and characteristics of pressure ulcers in hospitalized patients in China" Int J Clin Exp Pathol, 7(5), PP.2587-2594,2014.
15. Lenka Šáteková, Katarína Žiaková **"**Validity Of Pressure Ulcer Risk Assessment Scales, Review" *Central European Journals Nursing Midwifery* 5(2), PP. 85-92 ISSN 2336 3517,2014.
16. I. Mwebaza, et al." Nurses' Knowledge, Practices, and Barriers in Care of Patients with Pressure Ulcers in a Ugandan Teaching Hospital" Nursing Research and Practice Volume 2014 (), Article ID 973602, pages 6, 2014.
17. D, Berlowitz,et al." Preventing Pressure Ulcers in Hospitals" A Toolkit for Improving Quality of Care P-9
18. EPUAP The 2014 International Stop Pressure Ulcer Day British Journal of Nursing Vol. 23, No. 20, 2014.
19. Black JM, et al. "Medical device related pressure ulcers in hospitalized patients". Int Wound J; Vol.7, No. 5, PP.358–365, 2010.
20. Z. Moore and S. Cowman. "Pressure ulcer prevalence and prevention practices in care of the older person in the Republic of Ireland" Journal of Clinical Nursing, 21, 362–371 doi: 10.1111/j.1365-2702,2011.
21. H.M. Khor et al." Determinants of mortality among older adults with pressure ulcers" journal homepage: www.elsevier.com/locate/archger, Archives of Gerontology and Geriatrics 59 PP.536–541, 2014.
22. Adegoke BOA, Odole AC, Akindele LO and Akinpelu AO ." Pressure ulcer prevalence among hospitalized adults in university hospitals in South-west Nigeria" Wound Practice and Research, Vol. 21 No.3, PP. 128-134, 2013.
23. Haileyesus Gedamu et al. **"**Prevalence and Associated Factors of Pressure Ulcer among Hospitalized Patients at Felegehiwot Referral Hospital, Bahir Dar, Ethiopia", Hindawi Publishing Corporation Advances in Nursing Vol. 2014, Article ID 767358, 8 pages,2014. http://dx.doi.org/10.1155/2014/767358
24. Melese M. K.et al. "Prevalence and Associated Factors of Pressure Ulcer among Adult Inpatients in Wolaita Sodo University Teaching Hospital, South Ethiopia" Journal of Biology, Agriculture and Healthcare Vol.6, No.11, 2016.

25. Edda Johansen, Linda N. Bakken, and Zena Moore "Pressure Ulcer in Norway-A Snapshot of Pressure Ulcer Occurrence across Various Care Sites and Recommendations for Improved Preventive Care" *Healthcare, 3*, PP. 417-428; doi:10.3390/3020417, 2015.
26. P. A. Brito et al "Prevalence of pressure ulcers in hospitals in Brazil and association with nutritional status-A multicenter, cross-sectional study" Nutrition Vol. 29, PP.646–649, 2013.
27. Chacon JMF, Blanes L, Hochman B, Ferreira LM" Prevalence of pressure ulcers among the elderly living in long-stay institutions in São Paulo" Sao Paulo Med J.; 127(4):211-5,2009.
28. The Joint Commission, Division of Health Care Improvement" Preventing pressure injuries" quick Safety Issue 25, Page 2,July 2016
29. N. Tayyib et al. "Saudi Arabian adult intensive care unit pressure ulcer incidence and risk factors: a prospective cohort study" Int Wound J; 13, PP.912–919doi,10.1111/iwj.12406,2016.
30. J. C. Gardliner et al. "Incidence of hospital-acquired pressure ulcers – a population-based cohort study" doi: 10.1111/iwj.12386,Int Wound J; 13,PP.809–820,2016.
31. Scarlatti KC, Michel JLM, Gambá MA, Gutiérrez MGR "Pressure ulcers in surgery patients: incidence and associated factors" Rev.Esc.Enferm USP; 45(6), PP.1369-1375, 2011.
32. Baumgarten et al. Extrinsic Risk Factors for Pressure Ulcers Early in the Hospital Stay: A Nested Case–Control Study. Journal of Gerontology: MEDICAL SCIENCES, Vol. 63A, No. 4, PP.408–413, 2008.
33. Barbara J. Braden, Joann Maklebust "Preventing Pressure Ulcers with the Braden Scale" AJN, Vol. 105, No. 6, June 2005.
34. Vanderwee, K., Clark, M., Dealey, C., Gunningberg, L., Defloor, T. "Pressure ulcer prevalence in Europe: a pilot study". J. Eval. Clin. Pract. 13 (2), PP.227–235, 2007.
35. Bergstrom, N., Demuth, P.J., Braden, B.J., 1987. A clinical trial of the Braden Scale for Predicting Pressure Sore Risk. Nurs. Clin. North Am. 22 (2), 417–428
36. Benalfew Lake. "Prevalence and Associated Factors of Pressure Ulcer among Hospitalized Adults at Debre Markos Referral Hospital, East Gojjam Zone, Ethiopia" (unpublished) 2016.

ANNEXES

Annex I. Participant Information Sheet

Dear participants

My name is _____ I am working as a data collector in the survey will conduct by Jimma University, institute of Health, Faculty of health Science, and school of Nursing and Midwifery. This study is to assess prevalence of pressure ulcer and associated factors among hospitalized Adult patient at Public hospital in Sidama Zone, SNNPR, Ethiopia, 2017. And all adult patients who fulfill the criteria during data collection period will be participating in study.

Purpose

The purposes of this study generate information about Prevalence of pressure ulcer and associated factors among hospitalized Adult patients in Public hospital in Sidama Zone, SNNPR. The finding of study may help for health institution, and health workers to take actions based on the result.

Risk and benefits

The risk of participating in this study you may feel that it has some discomfort and pain during physical examination and it may take few minutes from your time. There would not be any direct payment for participating in this study. But the findings from this research may help preventing pressure ulcer. If you are participating in this study, you will not get direct benefit to you but your participation is likely to help us in showing the prevalence of pressure ulcer and associated factors that help in resource allocation and decision making.

Procedure

The questionnaire contain, interview, document review format, and format for physical examination is designed to assess Prevalence of pressure ulcer and associated factors among hospitalized adult patients at Public hospital in Sidama Zone, South Nations Nationalities Peoples' Regional State, Ethiopia. In order to effectively attain the objective of the research, we are requesting your help. Your responses and physical findings will be completely confidential. It is your full right to refuse in responding any question and attending of physical examination. However, your willingness will help us in better understanding of prevalence of pressure ulcer and associated factors. So, we are requesting you to give your honest volunteer and keep participation.

Confidentiality

The information you will provide us for this study will be confidential. The questionnaire will be coded to exclude your names. No reference will be made to anyone except the principal investigator and supervisors.

Rights

Participation for this study is fully voluntary. You have full right to participate or refuse from this research. You will have the right to withdraw from the study at any time without losing any of your right, and you will not Expected to answer any question that you will not to answer.

Person to Contact

If you want to know more information & any question regarding research project, you will be able to contact an individual through the following address.

Mr. Yosef Yohanes, Mobile: +251911743946 E-mail: abigiyayosef@gmail.com

Annex II. Consent Form

I understand the objective and the purpose of this study and similarly i understand the risk and benefit of this study. I also understand that the research will not bring risk and complication to me and to my family.

I have been told that if, I feel discomfort to respond to any of the question, I have free right to withdraw it any time, when I wish. I have understood that, the information given and the participation is completely voluntary. I have been told that my answers to the questions will not be given to anyone and not expect to write my name. Now I am giving my consent to participate in the study

voluntarily. _____ Yes, I want to participate in the study (Please go to the next page).

_____ No, I don't participate in the study (Thank you very much!).

Witness: Signature_____ Date _____

Data collector

Name_____Signature_____Date____/_____/____

Annex -III: Questionnaires-English

Part I. Patient's Socio-demographic Data

Name of Hospital _____

Card No _____

ID No _____

Date of admission_____

Reviewer's Name: _____ Code: _____ Signature: _____

Supervisor's Name:_____Code: _____Signature_____

S.No	**Question**	**Responses**	Jump
101.	Patients Age	_____Years	
102	Sex	1. Male 2. Female	
103	Place of residence	1. Urban 2. Rural	
104	Marital status	1. Single 2. Married 3. Divorced 4. Widowed	
105	Educational status	1. No education 2. Only read and write 3. 1-8 grade 4. 9-12 grade 5. 12+ grade	
106	Religion	1. Protestant 2. Orthodox 3. Muslim 4. Catholic 5. Others_____	

Part II- Patient and Service Related

S. No	Question	Response	
201.	Ward	1. Medical 2. Surgical 3. Oby/Gyn 4. ICU	
202	Patient Level of consciousness	1. Unconscious 2. Conscious 3. Sedation 4. NR	
203	Length of Hospital stay	_____Days	
204	Is there Evidence of prescribed turning position schedules?	0. No 1. Yes	If, No go to 206
205	If, 'Yes' for question number '204', how often the patient gets turning position schedules?	1. Every 2 hours 2. Every 3-4 hours 3. Turned 4 times/day	
206	Identify Patient Body mass index (kg/m^2)	1. <18.5 kg/m^2 2. 18.5–24.99 kg/m^2 3. 25–29.99 kg/m^2 4. ≥30kg/m2	
207	What is the patient Medical, and/or Surgical diagnosis?	1. Diabetes mellitus 2. Sepsis 3. Disease of respiratory system 4. Anemia 5. Hypertension 6. Stroke 7. CHF 8. Spinal cord injury 9. Head injury	

		10. Fracture 11. Others_____	
208	Is patient with medication?	0. No 1. Yes	If No for skip to Ques 210
209	If, 'yes' for question Number '208' Which medication patient taking?	1. Corticoids 2. Antimicrobial 3. Antihypertensive 4. Analgesic 5. Antidepressant/anxiolytic 6. Antihistamine 7. Antiplatelet 8. Antiacid 9. Hypoglycemic 10. Others_____	
210	Does the patient have edema?	0. No 1. Yes	
211	Is patient with medical devices?	0. No 1. Yes	If ,No, jump to 213
212	If, 'yes' for question no '211'Which medical devices patient use?	1. Foley catheters 2. Nasogastric tube 3. Gastrostomy tube 4. Tracheostomy tube & ties 5. Facemasks 6. Nasal cannulas 7. Pulse oximetry probes 8. Endotracheal tube 9. cervical collars 10. Casts 11. intravenous device	

		12. Others----------	
213	Does the patient develop pressure ulcer?	0. No 1. Yes	If, No, go to part III
214	If, 'Yes' for question "213", where did he/she develop?	1. At public hospital 2. Out of public hospital	
215	If, 'Yes' for question "213", Where is anatomical location of pressure ulcer?	1. Sacral 2. Greater trochanter 3. Shoulder 4. Occipital 5. Heel 6. Elbow 7. Nose 8. Lips 9. Neck 10. Earlobes 11. Hand 12. Leg 13. Other_____	
216	Identify the stage of pressure ulcer.	1. Stage I 2. Stage II 3. Stage III 4. Stage IV	
217	Number of Pressure Ulcer	1. Single 2. Bilateral 3. Multiple	

Part III. Braden Scale - For Predicting Adult Pressure Sore Risk

S.No	Criteria	Score			
		1	2	3	4
301	**Sensory perception** 1. completely limited 2. very limited 3. slightly limited 4. 4. no impairment				
302	**Moisture** 1. constantly moist 2. very moist 3. occasionally moist 4. 4. rarely moist				
303	**Activity** 1. bedfast 2. chair fast 3. walks occasionally 4. 4. walks frequently				
304	**Mobility** 1. completely immobile 2. very limited 3. slightly limited 4. 4. no limitation				
305	**Nutrition** 1. very poor 2. probably inadequate 3. adequate 4. 4. Excellent				
306	**Friction and shear** 1. problem 2. potential problem 3. 3. no apparent problem				

	Total score (1-23)	

Thank you very much!

Annex-IV: Braden Scale Pressure Ulcer Risk Assessment

Sensory perception: Ability to respond meaningfully to pressure-related discomfort

1. **Completely limited**: unresponsive (does not moan, flinch or grasp) to painful stimuli, due to diminished level of consciousness or sedation or limited ability to feel pain over most of the body.
2. **Very limited**: responds only to painful stimuli. Cannot communicate discomfort except by moaning or restlessness or has a sensory impairment which limits the ability to feel pain or discomfort over ½ of body**.**
3. **Slightly limited**: respond to verbal commands, but cannot always communicate discomfort or the need to be turned or has some sensory impairment which limits ability to feel pain or discomfort in one or two extremities.
4. **No impairment**: responds to verbal commands. Has no sensory deficit which would limit ability to feel or voice pain or discomfort.

Moisture: moisture the degree to which the skin is exposed to moisture.

1. **Constantly moist**: skin is kept moist almost constantly by perspiration, urine, etc. dampness is detected every time patient is moved or turned
2. **Very moist**: skin is often, but not always moist. Linen must be changed at least once a shift.
3. **Occasionally moist**: skin is occasionally moist, requiring an extra linen change approximately once a day.
4. **Rarely moist**: skin is usually dry; linen only requires changing at routine intervals.

Activity: degree of physical activity.

1. **Bed fast**: confined to bed.
2. **Chair fast**: ability to walk severely limited or non-existent. Cannot bear own weight and /or must be assisted in to chair or wheelchair.
3. **Walks occasionally**: walks occasionally during day, but for very short distances, with or without assistance. Spends majority of each shift in bed or chair.
4. **Walks frequently**: walks outside room at least twice a day and inside room at least once every 2hours during waking hours.

Mobility: ability to change and control body position.

1. **Completely immobile**: does not make even slight changes in body or extremity position without assistance.

2. **Very limited**: makes occasional slight changes in body or extremity position but unable to make frequent or significant changes independently.
3. **Slightly limited**: makes frequent through slight changes in body or extremity position independently.
4. **No limitation**: makes major and frequent changes in position without assistance.

Nutrition: nutrition reflects the food intake pattern of the assessed person, as well as liquid supplements.

1. **Very poor**: never eats a complete meal. Rarely eats more than 1/3 of any food offered. Eats 2 servings or less of protein (meat or dairy products) per day. Takes fluid poorly. Does not take a liquid dietary supplement or is NPO and / or maintained on clear liquids or IVs for more than 5 days.
2. **Probably inadequate**: rarely eats a complete meal and generally eats only about ½ of any food offered. Protein intake includes only 3 servings of meat or dairy products of per day. Occasionally will take a dietary supplement or receives less than optimum amount of liquid diet or tube feeding.
3. **Adequate**: eats over half of most feels. Eats a total of 4 servings of protein (meat, dairy products) per day. Occasionally will refuse a meal, but will usually take a supplement when offered or is on a tube feeding. regimen, which probably meets most of nutritional needs.
4. **Excellent** eats most of every meal. Never refuses a meal. Usually eats a total of 4 or more servings of meat and dairy products. Occasionally eats between meals. Does not require supplementation.

Friction /shear: friction and shear assess the person's ability to keep the skin free from contact with the wrinkle area.

1. **Problem**: requires moderate to maximum assistance in moving. Complete lifting without sliding against sheets is impossible. Frequently slides down in bed or chair, requiring frequent repositioning with maximum assistance. Spasticity, contractures or agitation leads to almost constant friction.
2. **Potential problem**: moves feebly or requires minimum assistance. During a move skin probably slides to some extent against sheets, chair, restraints or other devices. Maintains relatively good position in chair or bed most of time but occasionally slides down.
3. **No apparent problem**: moves in bed and in chair independently and has sufficient muscle strength to lift up completely during move. Maintains good position in bed or chair.

Annex-V: NPUAP and EPUAP international classification system for pressure ulcers

Stage I: non-blanchable erythema:- Intact skin with non-blanchable redness of a localized area usually over a bony prominence. The area may be warmth, edema, firm, soft, painful and warmer or cooler compared to adjacent tissue. Darkly pigmented skin may not have visible blanching makes difficult to detect in individuals with dark skin tones.

Stage II: Partial thickness skin loss :- loss of dermis presenting as a shallow open ulcer with a red pink wound bed, without slough. May present as an intact or open/ruptured serum filled or sero-sanginous filled blister. Presents as a shiny or dry, shallow ulcer without slough or bruising

Stage III: Full thickness skin loss (fat visible) subcutaneous fat may be visible but bone, tendon or muscles were not exposed. Some slough may be present and May include undermining and tunneling. The depth of pressure ulcer varies by anatomical location. The bridge of the nose, ear, occiput and malleolus do not have subcutaneous (adipose) tissue ulcers can be shallow. Bone/tendon is not visible or directly palpable.

Stage IV: Full thickness tissue loss (muscle/bone visible) exposed bone, tendon or muscle. Slough or eschar may be present on some parts of the wound bed. Often include undermining and tunneling. Exposed bone/muscle is visible or directly palpable.

Unstageable Full thickness skin /tissue/ loss - actual depth of the ulcer is completely obscured by slough (yellow, tan, gray, green or brown) and/or eschar (tan, brown or black) in the wound bed. Until enough slough and/or eschar are removed to expose the base of the wound, the true depth cannot be determined; but it will be either a Category/Stage III or IV.

Suspected Deep Tissue Injury: Depth Unknown Purple or maroon localized area of discolored intact skin or blood-filled blister due to damage of underlying soft tissue from pressure and/or shear The area may be preceded by tissue that is painful, firm, mushy, boggy, warmer or cooler as compared to adjacent tissue. may be difficult to detect in individuals with dark skin tones.

<u>የጥናቱ መጠየቅ የስምምነት ማረጋገጫ ቅጽ</u>

ውድ የጥናቱ ተሳታፊዎች

ስሜ----------ይባላል በጅማ ዩኒቨርስቲ በጤና ኢንስቲትዩት በጤና ሳይንስ ፋካሊቲ በነርሲንግና ሚድዋይፈሪ የትምህርት ክፍል በ2ኛ ዓመት የማስተርስ ተማሪ ለሚካሄደው ጥናት የረጃ ስብሳቢ ነኝ::

የጥናቱ በደቡብ/ብ/ብ/ህ/ክ/መ/ በሲዳማ ዞን ባሉት የመንግስት ሆስፒታሎች ላይ የሰውነት ቁስለት ስርጭትና ተያያዥነት ያላቸውን መንስኤዎችን አልጋ ላይ ተኝተው በህክምና ክትትል ላይ ባሉ አዋቂዎች ላይ ይሆናል::መስፈርቱን የሚያሟሉ ተሳታፊዎች ለጥናቱ ይመረጣሉ::

<u>የጥናቱ ዋንኛ አላማ</u>

የዚህ ጥናት ዋና አላማ የሰውነት ቁሳቁስ ስርጭትና መንሴዎቻቸውን በአዋቂ ታካሚዎች ላይ ምን እንደሚመስል መረጃ ማግኘትና ውጤቱን ለጤና ተቋማት ፤ለጤና ባለሙያዎች እርምጃ እንዲወስዱ ለማድረግ ነው::

በጥናቱ ወቅት ሊያጋጥሙ የሚችሉትን ጉዳዩችና ጥቅሞች

በዚህ ጥናት ተሳታፊ በመሆን ሊያጋጥምዎ የሚችለው ጉዳት አለመመቸትና በጥናቱ ወቅት ትንሽ ህመም ና በተጨማሪም የተወሰነ ደቂቃዎችን ይሆናል:: ለነዚህ ጥናት ተሳታፊዎች በመሆን የሚከፈልዎት ክፍያ አይኖርም:: ነገር ግን የእርስዎ እርዳታ የሰውነት ቁስለትን ለመከላከል ይረዳናል::

<u>የጥናቱ ሂደት</u>

የጥናቱ መጠየቅ የሚይዘው ምርመራ ከጤናዎት መረጃ መውሰድን እንዲሁም በተጨማሪም የግል ጥያቄዎችን ያካተተ ሲሆን ይህን ጥናት ከግብ ለማድረስ የእርስዎ እርዳታ እንጠይቃለን:: የእርስዎ መልስና የምርምርም ውጤት ሚስጥራዊነቱ የተጠበቀ ነው::በዚህ ጥናት የመካፈልና ያለመካፈል መብትዎ የተጠበቀ ነው::

ነገር ግን የርስዎ ፈቃደኝነት የሰውነት ቁስለትን ስርጭትና ተያያዥነት ያላቸውን መንስኤዎች እንድንረዳ ያደርገናል:: በመሆኑም በዚህ ጥናት እንዲሳተፉ በትህትና እንጠይቃለን::

<u>ሚስጥራዊነት</u>

ከእርስዎ የምናገኘው መረጃ ሚስጥራዊነቱ የተጠበቀና ውጤቶቹ የሚስጥር ቁጥርና የእርስዎን ስም ዝርዝር ያልያዘ ነው:: ይህም ለሶስተኛ ወገን ተላልፎ አይሰጥም:: ጥናቱም ከሚደረገው ሰውና ከጥናቱ ተቆጣጠሪ በስተቀር::

መብትዎ

በዚህ ጥናት የመሳተፍም ሆነ ያለመሳተፍ ሙሉ መብት አለዎት:: ጥናቱ የመሳተፍ በእርስዎ ፈቃደኝነት ላይ የተመሰረተ ነው:: በዚህ ጥናት ባለመሳተፍዎ ከሆስፒታሉ የሚያገኙትን ጥቅም የማያጡ መሆኑን እናረጋግጣለን::

ሊያማክሩት የሚችሉት ሰው

ስለጥናቱ በተመለከተ ለማወቅም ሆነ ለመጠየቅ ቢፈልጉ ከዚህ በታች የተመለከተውን ስምና አድራሻ መሠረት ማግኘት ይችላሉ::

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የመሰማሚያ ፈቃድ ፎርም

የጥናቱ አላማና ግብ በተጨማሪም ከጥናቱ የሚገው ጥቅምና ጉዳቱ የተረዳሁ ሲሆን ጥናቱ በኔና በቤተሰቤ ላይ ጉዳት እንደማያደርስ ተረድቻለሁ::

ጥናቱ ፍጽም ፈቃደኝነት ላይ የተመሰረተና ከጥናቱ በማነኛውም ሰዓት መውጣት እንደምችል ተረድቻለሁ በመሆኑም በዚህ ጥናት በፍቃደኝነትለመሳተፍ የተስማማሁ

----------አዎ በጥናቱ ለመሳተፍ እፈልጋለ(ይሂዱ ወደ ሚቀጥለው ገጽ ይሂዱ)

----------አየደልም በጥናቱ ለመሳተፍ አልፈልግም(እናመሰግናለን)

በጥናቱ ለመሳተፍ ፈቃደኛ መሆኔን በፊርማዬ አረጋግጣለሁ::

የተሳታፊ ፊርማ---------- የመረጃ ሰብሳቢ ፊርማ----------

Annex -VI የአማርኛ መጠይቅ

ክፍል 1. የህመምተኛ(ዋ) የህይወት ታሪክ የተመለከተ መጠይቅ

የሆስፒታሉ ስም----------

የካርድ ቁጥር----------

የመ/ቁጥር ----------

በሆስፒታል የተኙበት ቀን----------

መረጃ ሰብሳቢው ስም----------ኮድ---------- ፊርማ----------

ተቆጣጣሪ ስም---------- ኮድ---------- ፊርማ----------

ተ.ቁ	ቃለ መጠይቅ	ምላሽ	
101	የታማሚዋ/ው/ ዕድሜ	---------- ዓመት	
102	ፆታ	1. ወንድ 2. ሴት	
103	አድራሻ	1. ከተማ 2. ገጠር	
104	የጋብቻ ሁኔታ	1- ያላገባ/ች/ 2- ያገባ/ች/ 3- የተፋታ/ች/ 4- የሞተበት/ባት/	
105	የትምህርት ሁኔታ	1. ያልተማረ 2. ማንበብና መጽሐፍ የሚችል 3. 1-8 ክፍል 4. 9-12 ክፍል 5. 12 ክፍልና ከዚያ በላይ	
106	ሀይማኖት	1. ፕሮቴስታንት 2. ኦርቶዶክስ 3. ሙስሊም 4. ካቶሊክ 5. ሌላ ካለ ይገለጽ	

ክፍል -2 ህመምተኛው/ዋን/ና አገልግሎቱን በሚመለከት

ተ.ቁ	ቃለ መጠይቅ	ምላሽ	
201	የመኝታዋ/ው ክፍል	1. የስጋ ደዌ ክፍል 2. የቀዶ ጥገና ክፍል 3. የእናቶች መኝታ ክፍል 4. የፅኑ ህሙማን ክፍል	
202	የታማሚው/ዋ/ የንቃተ ህሊና ደረጃ	1. እራሱን/ሷን የማያውቅ/ታውቅ 2. ንቁ 3. በመድሃኒት የደነዘዘ 4. ምላሽ የማይሰጥ	
203	ለምን ያህል ጊዜ ሆስፒታል ውስጥ ተኝተው ታከሙ	----------	
204	ህመምተኛውን በአልጋው ላይ ተጨባጭ የሆነ የማገላበጥ ፕሮግራም አለው/ት/	0- አይደለም 1- አዎ	የለም ከሆነ ወደ ጥያቄ ቁጥር 206
205	ለ204 ጥያቄ አዎ ከሆነ በምን ያህል ጊዜ ህመምተኛው በአልጋው ላይ ይገላበጣል	1. በየሁለት ሰዓቱ 2. በየ3-4 ሰዓት 3. በቀን 4 ጊዜ	
206	የህመምተኛውን/ዋን አካላዊ እቅም(Body Mass index)	1. <18.5 ኪ.ግ/ሜ^2 2. 18.5-24.99 ኪ.ግ/ሜ^2 3. 25-29.99 ኪ.ግ/ሜ^2 4. >30 ኪ.ግ/ሜ^2	
207	የታማሚው/ዋ/ የበሽታዋ/ው አይነት ምንድነው	1. የስኳር በሽታ 2. ኢንፊክሽን 3. የመተንፈሻ አካል በሽታ 4. ደም ማነስ 5. የደም ግፊት 6. የልብ ህመም 7. የአከርካሪ አጥንት ጉዳት 8. የጭንቅላት ጉዳት 9. ስብራት	

		10. ሌላ ካለ ይገለጽ	
208	ህመምተኛው መድሃኒት ትወስዳለች/ይወስዳል	0. አይደለም 1. አዎ	

ተ.ቁ	ቃለ መጠይቅ	ምላሽ	
209	አዎ ከሆነ ለጥያቄ ቁጥር 208 የትኛውን የመድሃኒት አይነት ህመምተኛው ይወስዳል/ትወስዳለች	1. ከርቲ ኮይድስ 2. አንቲ ማይክሮቢያል 3. የደም ግፊት 4. የህመም ማስታገሻ 5. አንቲ ዲፕረሳንት 6. የአላርጅክ 7. የደም መርጋት መድሃኒት 8. የጨጓራ መድሃኒት 9. የስኳር መድሃኒት 10. ሌላ ካለ ይገለጽ	
210	ህመምተኛው እብጠት አለው/ላት/	0- የለም 1- አዎ	
211	ህመምተኛው የህክምና ቁሳቁስ እየተጠቀመ ነው	0- የለም 1- አዎ	የለም ከሆነ ወደ ጥያቄ 213 ይችላሉ
212	አዎ ከሆነ ለጥያቄ 211 የትኛውን ህክምና ቁሳቁስ ህመምተኛው እየተጠቀመ ይገኛል	1. የሽንት ማንያ ቱቦ 2. የምግብ መመገቢያ ቱቦ 3. ጋስትሮ ኦስቶሚ ቲዩብ 4. ትራኪዩ አስቶሚ ቲየቭ ና ታይስ 5. ፌስ ማስክ 6. ፐልሶ እግዚሜትሪ ፕሮቭ 7. ኢንዶትራክያል ቲዩቭ 8. ሰርቫይካል ኮላር 9. ካስት 10. ኢንትራቬነስ ዲቫይስ 11. ሌላ ካለ ይገለጽ	
213	ህመምተኛው የሰውነት ቁስለት አለው/ላት/	ዐ. የለም ነ. አዎ	የለም ከሆነ ወደ ጥያቄ

			ክፍል 3
214	አዎ ከሆነ ለጥያቄ 213 የትነው የሰውነት ቁስሉን የተገኘበት	1. በመንግስት ሆስፒታል 2. ከመንግስት ሆስፒታል ውጭ	
215	የሰውነት ቁስሉ በየትኛው የሰውነት ላይ ይገኛል	1. የመቀመጫ አጥንት 2. የታፋ የወጡ አጥንት 3. በትከሻ ላይ 4. የራስ ቅል ላይ 5. ከጀርባ 6. ተረከዝ 7. ክርን 8. አፍንጫ 9. ከንፈር 10. አንገት 11. ጆሮ 12. እጅ 13. እግር 14. ሌላ ካለ ይገለጽ	
216	የህመምተኛዋ/ው/የሰውነት ቁስል ደረጃ ይገለጽ	1. ደረጃ I 2. ደረጃ II 3. ደረጃ III 4. ደረጃ IV	
217	የሥውነት ቁስሉ በቁጥር	1. ነጠላ 2. በሰውነት በሁለት አቅጣጫ 3. ብዙ	

ክፍል III. የሰዉነት ቁስለት ተጋላጭነት በብራድን ደረጃ

ተራ.ቁ	መስፈርት	ዋጋ			
		1	**2**	**3**	**4**
301	ስሜት የመረዳት 1. ሙለ በሙለ የማይችል/የማትችል 2. በጣም ዉስንነት ያለበት/ባት 3. በመጠኑ ዉስንነት ያለበት/ባት 4. ጉድለት የሌለበት/ባት				
302	እርጥበት 1. የማይቐረጥ እርጥበት ያለዉ/ላት 2. በጣም የረጠበ /በች 3. አሌፎ አሌፎ እርጥበት 4. እርጥበት የማይታይበት /ባት				
303	የሰዉነት እንቅስቃሴ 1. በአልጋ ላይ የተወሰነ/ ነች 2. በወንበር ላይ በመቀመጥ የተወሰነ/ነች 3. አልፎ አልፎ መራመድ የሚቸል /ትችል 4. መራመድ የሚቸል /ትችል				
304	የአካል ክፍሎች እንቅስቃሴ ሁኔታ 1. የማይንቀሳቀስ 2. በጣም ዉስንነት ያለበት/ባት 3. በመጠኑ ዉስንነት ያለበት/ባት 4. 4. መንቀሳቀስ ችግር የሌለበት/ባት				
305	የአመጋግብ ሁኔታ 1. በጣም ጥቂት				

	2. በቂ ያልሆነ 3. በቂ የሆነ 4. ዕጅግ በጣም ጥሩ				
306	ሰበቃ እና መንቨራተት 1. ለችግሩ ተጋላጭ የሆኑ 2. ለችግሩ ተጋላጭ ሊሆን የሚችሉ 3. ለችግሩ ተጋላጭ ያልሆኑ				

በጣም አመሰግናለሁ !!!