“A STUDY ON PREDICTIVE VALUE OF PRESSURE SORE BY THE BRADEN SCALE IN SURGICAL INTENSIVE CARE UNITS”

Dissertation submitted to

THE TAMIL NADU Dr.M.G.R.MEDICAL UNIVERISTY

CHENNAI
with partial fulfilment of the regulations

for the Award of the degree

M.S. [General Surgery]

Branch – I

DEPARTMENT OF GENERAL SURGERY,

STANLEY MEDICAL COLLEGE ,

CHENNAI.

MAY-2020

CERTIFICATE

This is to certify that the dissertation entitled **"A STUDY ON PREDICTIVE VALUE OF PRESSURE SORE BY THE BRADEN SCALE IN SURGICAL INTENSIVE CARE UNITS"**

"is a bonafide original work of **Dr.KARTHICK.J**, in partial fulfilment of the requirements for M.S.Branch–I (General Surgery) Examination of the Tamil Nadu Dr. M.G.R. Medical University to be held in MAY 2020 under my guidance and supervision in 2019-20.

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DECLARATION

I, **Dr. KARTHICK.J** solemnly declare that dissertation titled,

"A STUDY ON PREDICTIVE VALUE OF PRESSURE SORE BY THE BRADEN SCALE IN SURGICAL INTENSIVE CARE UNITS" is a bonafide work done by me at Govt. Stanley Medical College & Hospital during 2017-2018 under the guidance and supervision of my Unit Chief. **Prof.Dr.R.MANIVANNAN.M.S** Professor of Surgery. The dissertation is submitted to Tamil Nadu Dr. M.G.R. Medical University, towards partial fulfilment of requirement for the award of **M.S. Degree (Branch – I) in General Surgery,** Examination to be held in MAY 2020.

Place : Chennai.

Date :

(Dr.KARTHICK.J)

ETHICAL COMMITEE CERTIFICATE

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INSTITUTIONAL ETHICS COMMITTEE

TITLE OF THE WORK : A STUDYON PREDICTIVE VALUE OF PRESSURE SORE BY THE BRADEN SCALE IN SURGICALNTESIVE CARE UNITS.

PRINCIPAL INVESTIGATOR : DR. J. KARTHICK
DESIGNATION : PG IN MS GENERAL SURGERY
DEPARTMENT : DEPARTMENT OF GENERAL SURGERY, GOVT. STANLEY MEDICAL COLLEGE.

The request for an approval from the Institutional Ethical Committee (IEC) was considered on the IEC meeting held on 11.05.2018 at the Council Hall, Stanley Medical College, Chennai-1 at 10am.

The members of the Committee, the secretary and the Chairman are pleased to approve the proposed work mentioned above, submitted by the principal investigator.

The Principal investigator and their team are directed to adhere to the guidelines given below:

1. You should inform the IEC in case of changes in study procedure, site investigator investigation or guide or any other changes.
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CERTIFICATE

This is to certify that this dissertation work titled **A STUDY ON PREDICTIVE VALUE OF PRESSURE SORE BY THE BRADEN SCALE IN SURGICAL INTENSIVE CARE UNITS** of the candidate **Dr.KARTHICK.J** with registration number **221711054** for the award of **M.S. Degree (Branch – I) in General Surgery.** I personally verified the urkund.com website for the purpose of plagiarism check. I found that the uploaded thesis file contains from introduction to conclusion pages and result shows **8 percentage** of plagiarism in the dissertation.

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ACKNOWLEDGEMENT

I sincerely express my heartful gratitude to

Prof.Dr.R.SHANTHI MALAR, M.D,, Dean, Stanley Medical College and Hospital, Chennai-1 for permitting me to do this study and use the resources of the college.

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I consider it a privilege to have done this study under the supervision of my beloved professor Prof.Dr.R.MANIVANNAN.,M.S who has been a source of constant inspiration and encouragement to accomplish this work.

I express my deepest sense of thankfulness to my Assistant Professors ,Dr.R.ABRAHAMJEBAKUMAR M.S., Dr.P.MATHUSOOTHANAN M.S., Dr.K.VASANTHAN M.S., Stanley Medical College and Hospital for their valuable inputs and constant encouragement without which this dissertation could not have been materialised.Iam also immensely grateful to my juniors r.SHANMUGAPRIYAN, Dr.MANOJ PRABAKAR ,Dr.KISHORE

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TABLE OF CONTENTS

INTRODUCTION

- The Braden scale is one of the most widely used risk assessment scale for pressure sores.
- It measures the risk for development of a pressure ulcer by using 6 subscales, each denoting a factor that has been found to contribute to pressure ulcer formation: mobility, activity, sensory perception, skin moisture, nutritional state, and friction/shear. Each of the subscales is scored from 1 to 4 (1–3 for friction/shear), with 1 representing the highest risk. The total Braden score ranges from 6 to 23.
- A lower total Braden score means a greater risk of pressure ulcers developing. Eighteen is the cutoff score that is generally accepted for predicting risk of pressure ulcers; however, a score of 16 has been recommended for ICU patients.[12]
- Braden scale has been tested in various settings, such as acute care settings, nursing homes, and tertiary care hospitals[6,10,12,13]; however, only a validity evaluations were conducted on patients in the ICU, where the challenges to prevention of pressure ulcers are the greatest.

Furthermore, only 4 of the subscales (skin moisture, mobility, friction/shear, and sensory perception) were significantly associated with development of pressure ulcers in ICU patients.[18–20] Therefore, it is uncertain to what extent the Braden scale should be the risk assessment instrument of choice in ICUs.

So here we study the predictive value of braden scale in intensive care units for developing pressure ulcer.

AIMS AND OBJECTIVES

"A STUDY ON PREDICTIVE VALUE OF PRESSURE SORE BY THE BRADEN SCALE IN SURGICAL INTENSIVE CARE UNITS"

PLACE OF STUDY

Department of general surgery –

Govt.Stanley medical college &hospital

DURATION

1 year

STUDY DESIGN

Observational study

SAMPLE SIZE **50**

$$SS = Z^{2*}(P)*(1-P)/ C^2$$

Where:

Z= Z Value

P = percentage picking a choice

C= confidence interval

PATIENT SELECTION:

Inclusion criteria:

- Post operative patients
- Post operative hospital stay > 48 hours
- Age > 40 years

Exclusion criteria:

- Patients who already had bed sores on the time of admission.
- post operative patients whose hospital stay < 48 hours.

METHODOLOGY

- Written informed consent will be obtained from all subjects before enrolment in the study
- All patients who are admitted in post op surgical ward.
- All patients are thoroughly examined and given scores

according to Braden scale.

- According to the scores the patients will be categorised as severe risk, high risk, moderate risk and mild risk.

- All patients were regularly examined for development of pressure sores 4 times at pod-1, 7, 14 and 28 days or at the time of discharge.

- Based on scores patients will be adviced regarding preventive measures of pressure sores.

- All patients will be monitored

- All patients will be followed up for a period of six months.

- All details regarding the study will be recorded according to the pre designed proforma mentioned below

PROFORMA

- NAME
- AGE/SEX :
- IP.NO :
- DIAGNOSIS :
- DATE OF SURGERY:
- DATE AND TIME OF STUDY :
- DATE OF DISCHARGE :
- COMORBIDITIES:
- PAST HISTORY :
- BRADEN SCORE:
- DEVELOPMENT OF BED SORE:
  (DATE AND DURATION OF HOSPITAL STAY)

  CONDITION ON DISCHARGE:

BRADEN SCALE- for predicting pressure sore risk

RISK FACTORS				**DAY OF ASSESS**	**1**	**2**	**3**	**4**
SENSORY PERCEPTION	COMPLETELY LIMITED	VERY LIMITED	SLIGHTLY LIMITED	NO IMPAIRMENT				
MOISTURE	CONSTANTLY MOIST	OFTEN MOIST	OCCASIONALLY MOIST	RARELY MOIST				
ACTIVITY	BEDFAST	CHAIRFAST	WALKS OCCASIONALLY	WALKS FREQUENTLY				
MOBILITY	COMPLETELY IMMOBILE	VERY LIMITED	SLIGHTLY LIMITED	NO LIMITATIONS				
NUTRITION	VERY POOR	PROBABLY INADEQUATE	ADEQUATE	EXCELLENT				
FRICTION AND SHEAR	PROBLEM	POTENTIAL PROBLEM	NO APPARENT PROBLEM					

SEVERE RISK- Total score<9 HIGH RISK – Total score 10-12

MODERATE RISK- Total score 13-14 MILD RISK- Total score 15-18

REVIEW OF LITERATURE

PRESSURE INJURIES:

Unrelieved prolonged pressure, commonly over a bony prominence such as the sacrum, can result in localized soft tissue injury. Although historically referred to as bed sores, or decubitus ulcers, these wounds

can occur anywhere on the body when there is increased pressure or friction, shearing forces, or limb spasticity.

Constant and attentive repositioning is essential for prevention and healing of pressure induced wounds.

Wound management begins with identifying and aggressively managing the modifiable factors that contribute to pressure injury development such as positioning, incontinence, spasticity, nutrition, equipment, and medical comorbidities.

Early interventions include dressing care and

cleaning of the wound as well as appropriate support surfaces. Bedside debridement of nonviable or infected tissue may be appropriate in some cases; however, surgical management may be necessary in

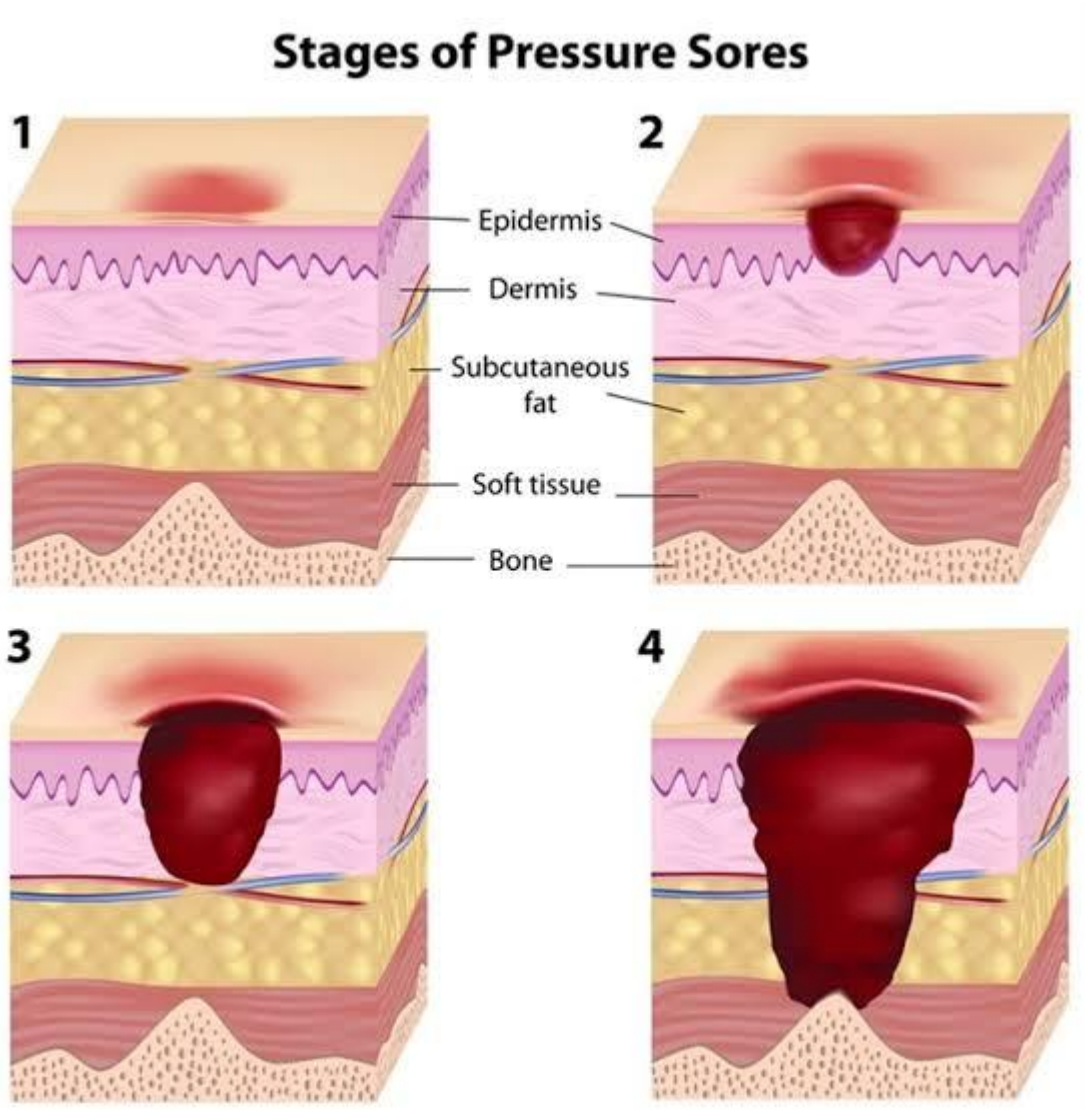
more severe cases or to promote patient comfort.

Preoperative medical optimization, thorough

debridement, and tension-free soft tissue coverage for closure of these defects remain the fundamental pillars of pressure injury management.

With increasingly complex patient populations suffering from

these often-debilitating wounds, multidisciplinary specialty team care is essential for long-term success.


Stages of Pressure Sores
1
2
3
4
Epidermis
Dermis
Subcutaneous fat
Soft tissue
Bone

EPIDEMIOLOGY

Around 2.5 million pressure injuries are treated annually in the United States. These patients are more likely to have increased hospital admissions and longer length of stay, and they are more likely to

be discharged to a nursing facility on discharge.

pressure injuries pose a significant burden to the health-care system. Moreover, pressure-related injuries are now considered among

the eight preventable conditions identified by the Centers for Medicare and Medicaid Services.

By this designation, the cost of treatment is no longer reimbursable for hospitals, no matter the inevitability or attempts made to prevent their occurrence.

Certain populations have been identified as high risk for developing pressure-related injuries

Patients with hip fracture or spinal cord injury (SCI)

Patients with lower extremity trauma resulting in bone or soft tissue injury with fixation and casting

Elderly patients with immobility and/or cachexia

Intensive care unit (ICU) patients

The risk is even more pronounced in the SCI population, in which there is an estimated incidence of 20% to 30% in paraplegic and quadriplegic patients. Patients may also present with more complicated risk

factors, such as long-term use of pain medications, suicidal behavior, history of incarceration, smoking, and substance abuse.

Multiple pressure injury risk assessment tools have been developed to stratify patient risk and may be used to guide prevention interventions, such as the Braden, Waterlow, and Norton scales.

Patient characteristics are included in the scales, such as mobility, nutrition, incontinence, and mental status.

Predictive value of these scales is fair, but there is no significant effect of implementation of the scales on reducing the incidence of pressure injuries.

The National Pressure Injury Advisory Panel is the authoritative voice for pressure injury prevention, treatment, and outcomes in the United States.

In 2016 the National Pressure Injury Advisory Panel

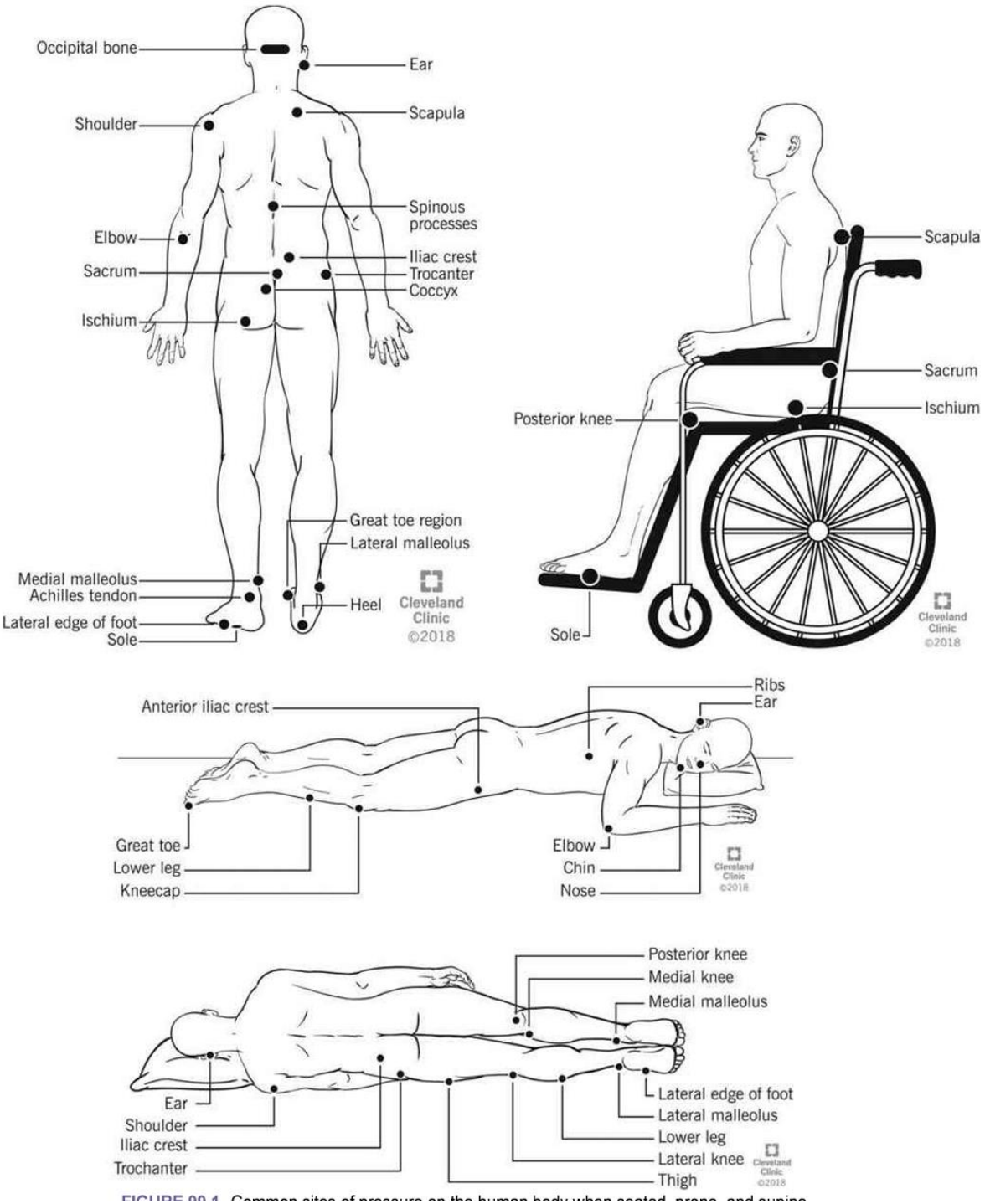
updated the pressure injury staging system.

Although there are some clinical exceptions, in general stage

1 and 2 pressure injuries are treated nonoperatively.

Stage 3 and 4 may require operative intervention to ameliorate.

Proper staging may require initial debridement of any overlying nonviable tissue if the extent of injury is indeterminate on initial clinical examination



Pathophysiology

Pressure

Pressure injures are caused by unrelieved mechanical pressure to soft tissue, most commonly over a weight-bearing bony prominence such as the sacrum, ischium, heel, or trochanter .

When external pressure exceeds capillary bed pressure (32 mm Hg), perfusion is impaired resulting in both ischemic tissue injury and pressure-related injury.

Relieving pressure over a bony prominence for 5 minutes every 2 hours will generally allow adequate perfusion and reduce the risk of soft tissue

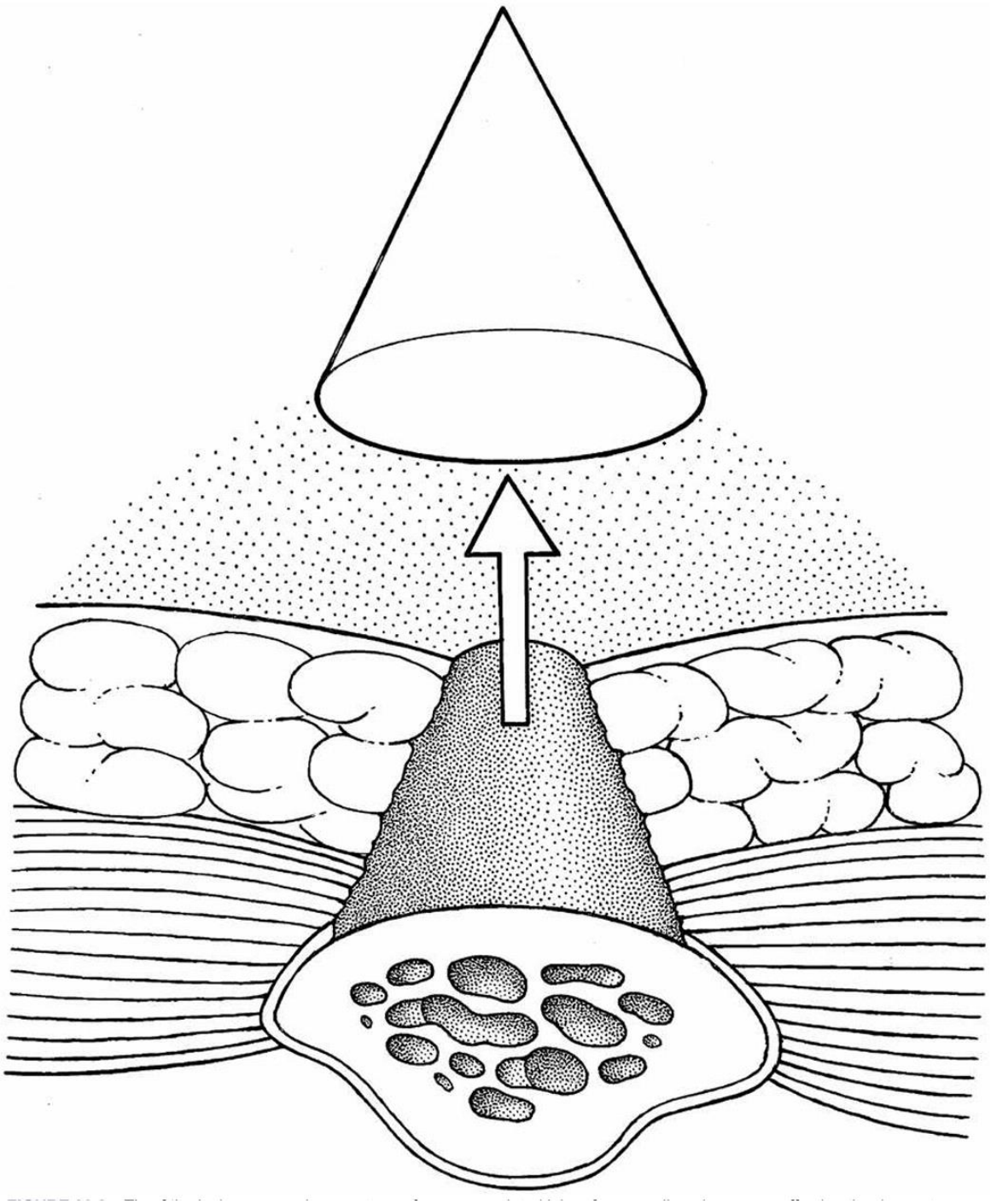
breakdown .

When the pressure exerted on the soft tissue becomes higher than that of the supplying blood vessels, edema and ischemia occur, metabolic waste products and free radicals accumulate, and with time permanent tissue destruction leads to significant defects .

Perhaps counterintuitively, the clear relationship between pressure and time is seen pathologically first in the muscle overlying the bone, followed by the superficial soft tissues and lastly the skin.

This distribution with less visible injury at the surface and the more extensive tissue injury deep, adjacent to the bone, is

referred to as the tip of the iceberg.



INFLAMMATION

Inflammation plays a major role in tissue injury, repair, and regeneration. Dynamic reciprocity, or the ongoing bidirectional interaction between cells and their surrounding environment, is an integral process

in wound healing.

The lack of objective quantifiable biochemical and physiologic markers that can be used to assess wound status is still a major hurdle in the progress of improved treatment regimens.

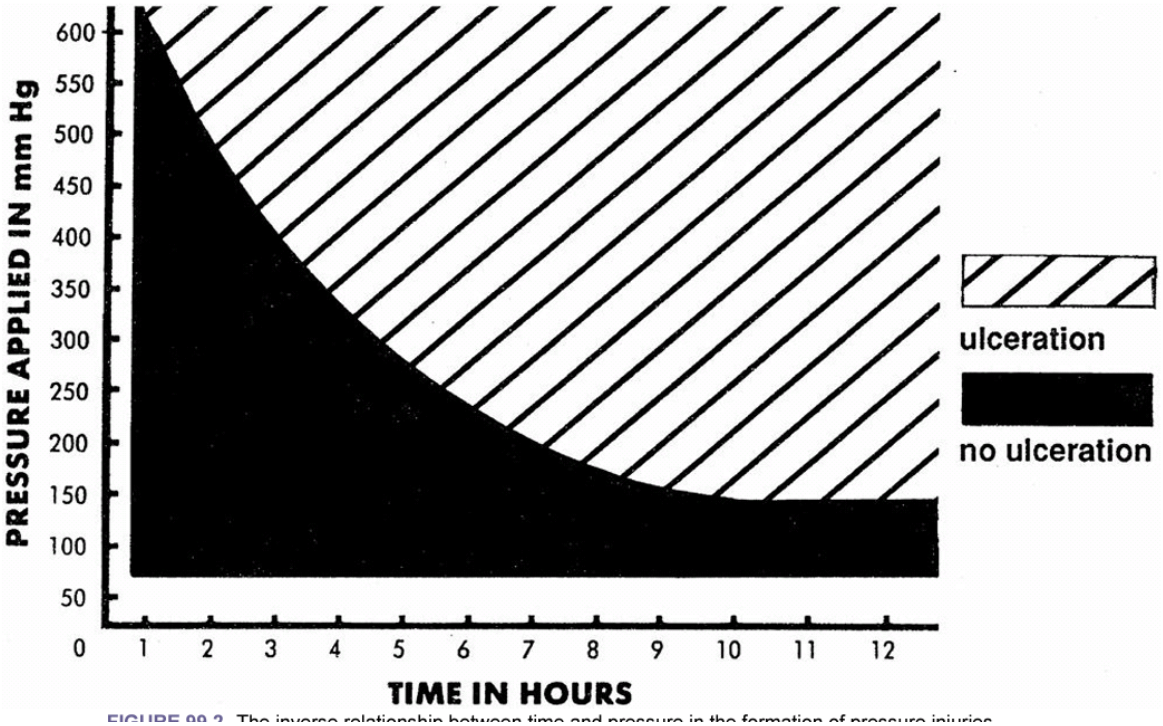


FIGURE 99-2 The inverse relationship between time and pressure in the formation of pressure injuries

EDEMA

Increased applied pressure leads to plasma extravasation and edema. Inflammatory mediators (e.g.,prostaglandin E2) are released in response to compression and cause leakage through cell membranes,

which increases the amount of interstitial fluid.

With local denervation there is a loss of sympathetic tone

to area vasculature, leading to vasodilation and vessel engorgement.

This is exacerbated by circulatory disease (i.e., heart or renal failure, venous insufficiency) and further increases edema in dependent areas.

Other Factors

Additional factors contributing to or exacerbating soft tissue loss include friction, shearing forces, malnutrition, moisture, and neurologic injury. Perspiration, wound drainage, and incontinence can lead

to an increased coefficient of friction between the wound and dressing or bed linens.

This further potentiates contact damage and tissue breakdown.

Despite this, there is no known direct evidence linking urinary or fecal incontinence with the direct formation of pressure-related injuries themselves.

National Pressure Ulcer Advisory Panel Staging System for Pressure Injuries[16]

	Description	Treatment
Stage 1	Nonblanching erythema	Pressure relief
Stage 2	Partial-thickness loss of dermis	Pressure relief, wound care
Stage 3	Full-thickness loss; subcutaneous tissue visible (but no muscle or bone)	Pressure relief, wound care, possible surgical debridement
Stage 4	Full-thickness loss with exposed bone, tendon, or muscle	Pressure relief, wound care, possible surgical debridement
Unstageable	Full-thickness loss, unknown depth due to eschar or slough	Wound care, removal of devitalized tissue for proper staging, possible surgical debridement
Deep tissue pressure injury	Purple/maroon colored intact skin with unknown true depth, or epidermal separation revealing dark wound bed or blood filled blister	Pressure relief, monitor wound over time, may go on to need surgical debridement
Mucosal membrane	Found on mucous membranes with a history of a medical device used at the location. These are not staged.	

Clinical Prevention and Management

Control Extrinsic Factors

Behavioral modification:

The mainstay of pressure injury prevention is the even distribution of pressure across the body in contact with any surface.

Mobilize and/or reposition

Avoid prolonged sitting

Encourage smoking cessation

Manage excess perspiration in and around wound and skin folds with appropriate dressings and clothing

Establish effective toileting routine to reduce/prevent soilage and maceration

Pressure relief: No single specific device has been proven superior for prevention relative to others.

Minimize head-of-bed elevation to reduce sacral shear forces (<45°)

Reposition every 2 hours, encourage mobility (if able)

Adjunct pressure offloading devices (i.e., foam wedge, pillows, boots)

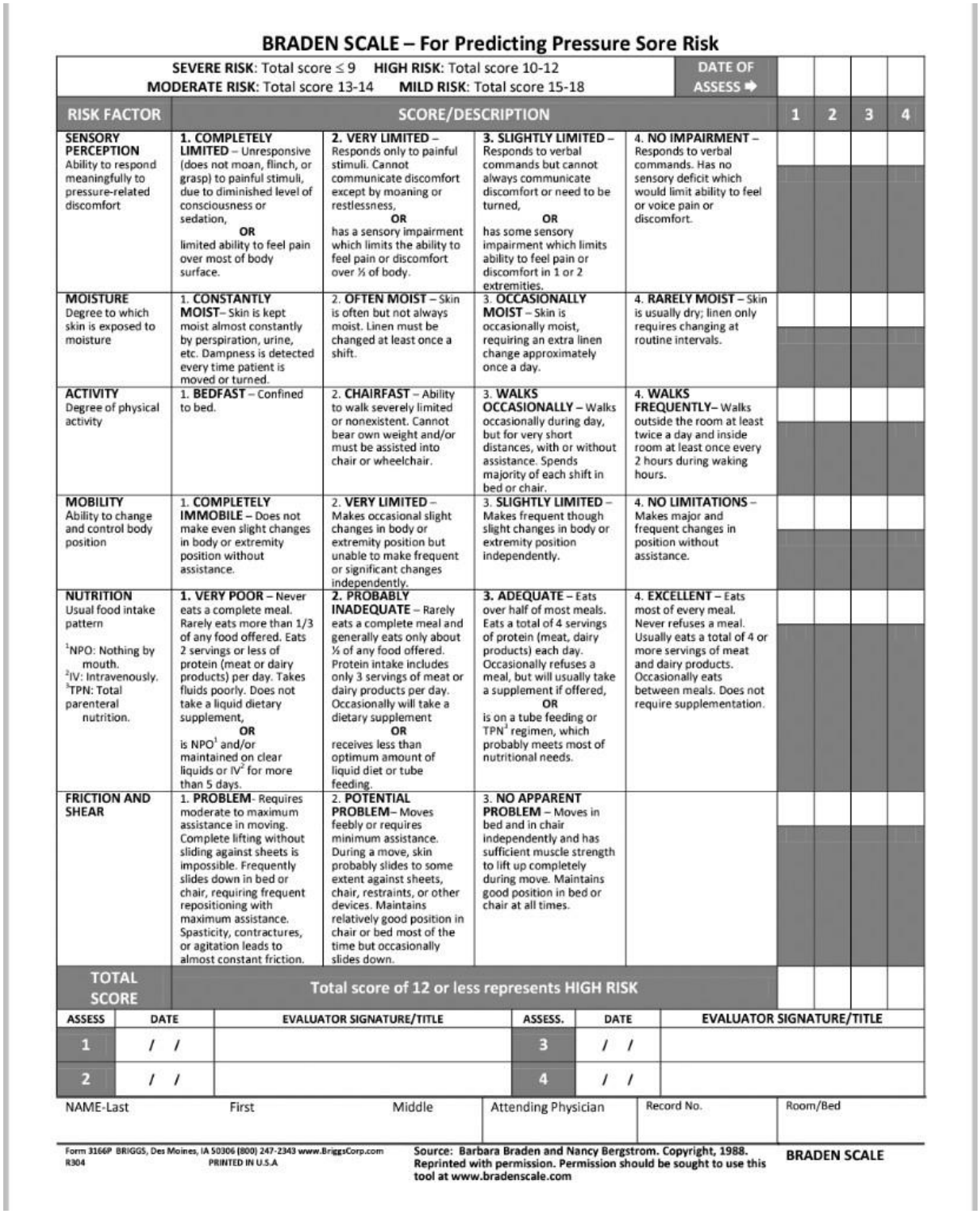
In the operating room:

float heels, intermittent scalp massage, pressure points padded

Pressure-relieving mattresses or seating surfaces (eg. Foam, low-air loss, or air-fluidized)

Consider prophylactic foam dressings on high-risk surfaces

BRADENSCALE:



BRADEN SCALE – For Predicting Pressure Sore Risk

SEVERE RISK: Total score ≤ 9 **HIGH RISK**: Total score 10-12
MODERATE RISK: Total score 13-14 **MILD RISK**: Total score 15-18

DATE OF ASSESS ➡

RISK FACTOR	SCORE/DESCRIPTION				1	2	3	4
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 body surface.	**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** – Responds to verbal commands but cannot always communicate discomfort or need to be turned, **OR** has some sensory impairment which limits ability to feel pain or discomfort in 1 or 2 extremities.	4. **NO IMPAIRMENT** – Responds to verbal commands. Has no sensory deficit which would limit ability to feel or voice pain or discomfort.				
MOISTURE Degree to which 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. **OFTEN 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. **BEDFAST** – Confined to bed.	2. **CHAIRFAST** – Ability to walk severely limited or nonexistent. Cannot bear own weight and/or must be assisted into 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 the room at least twice a day and inside room at least once every 2 hours 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 though slight changes in body or extremity position independently.	4. **NO LIMITATIONS** – Makes major and frequent changes in position without assistance.				
NUTRITION Usual food intake pattern [1]NPO: Nothing by mouth. [2]IV: Intravenously. [3]TPN: Total parenteral nutrition.	**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 fluids poorly. Does not take a liquid dietary supplement, **OR** is NPO[1] and/or maintained on clear liquids or IV[2] 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 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 meals. Eats a total of 4 servings of protein (meat, dairy products) each day. Occasionally refuses a meal, but will usually take a supplement if offered, **OR** is on a tube feeding or TPN[3] 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 AND SHEAR	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 the 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 at all times.					
TOTAL SCORE	Total score of 12 or less represents HIGH RISK							

ASSESS	DATE	EVALUATOR SIGNATURE/TITLE	ASSESS.	DATE	EVALUATOR SIGNATURE/TITLE
1	/ /		3	/ /	
2	/ /		4	/ /	

NAME-Last	First	Middle	Attending Physician	Record No.	Room/Bed

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BRADEN SCALE

The purpose of the Braden Scale is to help clinicians plan effective pressure injury prevention interventions. The scale is comprised of 6 items (subscales): sensory perception, moisture, activity, mobility, nutrition, and friction/shear.

Cumulative scores range from 6 (highest risk) to 23 (lowest risk). Evidence concerning pressure injury development based on cumulative Braden Scale score is mixed .

While the cumulative Braden Scale score identifies most critical-care patients who go on to develop a pressure injury (high sensitivity), cumulative scores classify most critical-care patients as “at risk” for pressure injuries, thus limiting its specificity.[9]

Categories

- Sensory perception
- Moisture
- Activity
- Mobility
- Nutrition
- Friction/shear

Sensory Perception

□1. Completely Limited

□Unresponsive

□Limited ability to feel pain over MOST of body

□2. Very Limited

□Painful stimuli

□Cannot communicate discomfort

□Sensory impairment over HALF of body

□3. Slightly Limited

□Verbal commands

□Cannot always communicate discomfort

□Sensory Impairment – 1-2 extremities

□4. No Impairment

□Verbal commands

□No sensory deficit

Moisture

□1. Constantly Moist

Perspiration, urine, etc.

Always

2. Very Moist

Often but not always

Linen changed at least once per shift

3. Occasionally Moist

Extra linen change Q day

Rarely Moist

Usually dry

Activity

1. Bedfast

Never OOB

2. Chairfast

Ambulation severely limited to non-existent

Cannot bear own weight – assisted to chair

3. Walks Occasionally

Short distances daily with or without assistance

Majority of time in bed or chair

4. Walks Frequently

□Outside room 2 x per day

□Inside room q 2 hours during waking hours

Mobility

□1. Completely Immobile

□Makes no changes in body or extremity position

□2. Very Limited

□Occasional slight changes in position

□Unable to make frequent/significant changes independently

□3. Slightly Limited

□Frequent slight changes independently

□4. No Limitation

□Major and frequent changes without assistance

Nutrition

□1. Very Poor

□Never eats complete meal/rarely > 1/3, 2 or< proteins/day

□NPO, clear liquids, IVs > 5 days

□2. Probably Inadequate

□Rarely eats complete meal, approx. 1/2, 3 proteins

□Occasionally takes dietary supplement

□Receives less than optimum liquid diet or tube feeding

□3. Adequate

□Eats over 1/2 of most meals, 4 proteins

□Usually takes a supplement

□Tube feeding or TPN probably meets nutritional needs

□4. Excellent

□Eats most of meals, never refuses, 4 or more proteins

□Occasionally eats between meals

□Does not require supplements

Friction and Shear

□1. Problem

□Moderate to maximum assistance in moving

□Frequently slides down in bed or chair

□Spasticity. contractures or agitation leads to almost constant friction

□2. Potential Problem

□Moves feebly, requires minimum assistance

□Skin probably slides against sheets, etc.

Relatively good position in chair or bed with occasional sliding

3. No Apparent Problem

Moves in bed and chair independently

Sufficient muscle strength to lift up completely during move

Good position in bed or chair.

Braden Score 15-18 Preventative Interventions (At Risk)

Regular turning schedule

Enable as much activity as possible

Protect the heels

Use pressure redistribution surfaces

Manage moisture, friction and shear

Advance to a higher level of risk if other major risk factors are present

Braden Score 13-14 Preventative Interventions (Moderate Risk)

Use the same protocol as for “at risk” patients

Position patient at 30 degree lateral incline using foam wedges

Braden Scale 10-12 Preventative Interventions (High Risk)

Follow the same protocol as for moderate risk

In addition to regular turning schedule

Make small shifts in their position frequently

Braden Scale = 9 or < Preventative Interventions (Very High Risk)

Use same protocol as for “high risk” patients

Add a pressure redistribution surface for patients with severe pain or with additional risk factors.

Control Intrinsic Factors

Medical optimization

Optimize other underlying medical comorbidities;

congestive heart failure, respiratory failure, and complicated diabetes are the most common diagnoses in patients with pressure injuries.

Optimize kidney function

Manage urinary and fecal incontinence—modify bowel routine or divert

Manage uncontrolled fistulas

Optimize blood glucose control, HgbA1c to <6%

Correct anemia

Nutrition: Malnutrition correlates with development of primary injuries and poor wound healing.

Consult nutritionist for assessment and dietary modifications to meet caloric goals for wound

healing (e.g., tube feed, high-calorie shakes).

Laboratory test results: serum albumin, prealbumin, and micronutrients: Zn, Ca, Fe, Cu, Vit A and C

Optimize healing potential with serum albumin ideal goal >3.0 g/dL before operating.

Goal is to provide adequate protein for positive nitrogen balance.

Track inflammatory markers in conjunction with nutritional laboratory results (erythrocyte or Westegren sedimentation rate, or C-reactive protein) as inflammation may artificially suppress albumin and prealbumin levels.

May need colorectal diversion for wound hygiene, as well as to improve diet and nutritional health

Swallow evaluation with or without feeding tube

Infection management

Septicemia, pneumonia, and urinary tract infections are the most common infection diagnoses in patients with pressure injuries.

Laboratory test results: evaluate markers of inflammation and infection (white blood cell count, erythrocyte sedimentation rate, C-reactive protein)

Avoid bedside swab of wounds due to contamination; intraoperative deep cultures are superior for antibiotic tailoring (22%–36% concordance between superficial swab versus intraoperative cultures reported).

Treat with pathogen-directed antibiotics when indicated

MRI may be indicated to evaluate extent of osteomyelitis (97% sensitive, 89% specific).

Bone biopsy is gold standard for diagnosis.

Neurologic spasm and contracture management

Especially SCI: Incidence of spasm varies with level of SC injury (proximal lesion = higher incidence)

Spasm and contracture create shear forces contributing to pressure injury development

Common in hip and knee joints

Antispasmodic pharmacotherapy: baclofen, diazepam, dantrolene

Botulinum toxin improves function and reduces limb spasticity with minimal side effects.

Procedural intervention if severe, after failed medical management

Peripheral nerve block, epidural stimulator, baclofen pump, rhizotomy

Surgical release of joint contracture or in severe cases amputation

Consider medical rhizotomy (phenol)

Wound Care

Make clinical assessment before choosing appropriate wound care dressing regimens for each patient and

each wound. Be sure to diagram, use photographs, and document a comprehensive physical examination

of all affected areas, including:

Dimensions (length × width × depth)

Presence of undermining, position (clock face location)

Indicators of infection and/or systemic symptoms of infection

Drainage, amount, and character

Odor, possible source, or cause

Deepest visible layer affected or seen in base of wound

Condition of periwound skin (such as bruising or maceration)

Vascular assessment of surrounding tissue or affected

Nonoperative Management

Dressings

Based on patient and wound assessment, select a dressing that will support a moist healing environment for the wound.

Appropriate wound-healing agents include hydrocolloids, alginates and hydrofibers, hydrogels, paraffin gauze dressings, and many other dressings and topical agents.

However, there is little clinical evidence to aid the choice between different dressings.

In general, the consensus opinion favors hydrogels during the debridement stage, foam and low-adherence dressings for the granulation

stage, and hydrocolloid and low-adherence dressings for the epithelialization stage.

Packing the wound cavity with moist gauze may be appropriate in some circumstances.

Ultimately, the dressing chosen should be best suited to manage the moisture level in and around the wound.

Preventive:

A recent consensus panel recommendation concluded multilayered silicone dressing was effective as an adjunct for reducing pressure-related injuries to sacrum, buttocks, and heels in highrisk

environments (the OR, ICU) when combined with traditional preventative measures.

Silicone is elastic and therefore able to absorb the shear forces and reduce skin deformation.

For dry wounds, create a moist healing environment. Many are dressings appropriate.

Traditional wet to moist saline dressing, typically should be changed one or two times per day, depending on wound debridement needs.

Use sodium hypochlorite solution or bleach-based solution if infection is suspected, particularly Pseudomonas.

Diluted sodium hypochlorite solution has been shown to be bactericidal with fibroblast preservation.

Hydrogels—Used as tube of gel or sheet; water-based, nonadherent; changed daily Hydrocolloid dressing has been associated with almost three times more complete healing compared with the use of saline gauze alone.

There is no evidence to support superiority of topical collagen

versus hydrocolloid for pressure injury healing, and it is more costly.

Honey—variable gel thickness and composition, minimal risk, and low cost, with possible autolytic and antimicrobial properties. 33

Studies on sustained silver-releasing dressing demonstrated a tendency for reducing the risk of infection and promoting faster healing, but sample sizes have been too small for statistical analysis to draw formal conclusions.

For wounds with large amount of drainage, use dressings that are absorbent.

Alginates (derived from seaweed) or synthetic hydrofibers.

These dressings have a dry, felt-like texture and absorb several times their weight in moisture.

There is evidence the use of alginates with hydrocolloid results in significantly greater reduction in the size of stage 3 and 4 pressure injuries compared to hydrocolloid alone.

Hydrocolloid gel forming polymers Foam dressings—can be used alone or as a cover dressing. Gentle on skin but can be more costly.

Wicking systems or salt-impregnated gauze

Negative-Pressure Wound Therapy

Negative-pressure wound therapy (NPWT), as well as NPWT systems with automated instillation capabilities and dwell time, is gaining popularity in the wound care armamentarium.

In addition to the benefits of negative-pressure therapy the cyclic instillation and dwelling of topical wound solutions aided

cleaning and granulation tissue formation.

The proposed benefits include removal of infectious materials,

reduced risk of compromise due to contamination, the ability to solubilize necrotic tissue, reduced volume of exudate, increased granulation tissue, and decreased wound size.

However, the use of negative-pressure systems should be considered in light of the effect it may have on patient mobility and

ambulation, as well as cost-to-benefit ratio given clinical and social scenario of each individual patient.

Contraindications to the use of NPWT include exposed vessels or organs, nonenteric and unexplored fistulas, malignancy, and untreated osteomyelitis.

Hyperbaric Oxygen Therapy

Hyperbaric oxygen therapy (HBOT) has been used as an adjunct to treat wounds for decades, proving to be safe and beneficial for selected patients.

HBOT increases oxygen transport to the wound area,

facilitates angiogenesis, reduces inflammation and swelling, improves lymphatic circulation, reduces infection by increasing the capacity of the leukocyte, and may relieve some pain.

pressure injury itself is not an indication for HBOT; however, HBOT may be used as adjunctive treatment for chronic

refractory osteomyelitis within a pressure injury or a failed graft or flap.

Biologic Therapies

The efficacy of platelet-derived growth factors, fibroblast growth factor, and granulocyte macrophage colony stimulating factor in improving complete pressure injury healing has not been well established.

There is limited low-quality evidence on skin matrix and tissue-engineered skin equivalents, with insufficient evidence to draw conclusions.

Other Therapies

There is some evidence that electrotherapy and whirlpool therapy may help reduce the size and surface area of stage 2 to 4 pressure injuries.

However, the efficacy of other therapy modalities such as electromagnetic therapy, low-level laser therapy, cold lasers, light therapy, or ultrasound therapy has not been found to promote superior healing of pressure injuries at present.

Surgical Management

Indications

Necrotizing infection

Need for significant debridement

Biopsy for malignancy, deep cultures

Bone and/or hardware exposure

Vasculature exposure

Organ exposure

Retained foreign body (i.e., packing)

Small skin opening with area of large undermining

Necessity due to medical complexity

Debridement and Wound Optimization

Soft Tissue

Infected and necrotic wounds require early and aggressive debridement of any infected or devitalized tissue.

Goals are the following:

Remove necrotic tissue

Decrease the bacterial count and biofilm

Convert a chronic wound to an acute wound

Bedside debridement may be limited by patient comfort and ability to secure hemostasis in both sensate and insensate patients.

Consider the patient's risk of autonomic dysreflexia (AD) with pain stimulus.

Intraoperatively, consider painting wound borders with methylene blue to ensure removal of the entire cavity.

Send deep tissue for culture to tailor antibiotic choice because this has been shown superior to superficial swabs, which tend to have high rate of misdiagnosis and may lead to antibiotic over treatment.

Initiate wound care following debridement.

Bone

Some institutions advocate taking bone biopsy only in conjunction with soft tissue debridement as needed, as to avoid seeding deep bone with any overlying infectious processes.

There is a high reported rate of osteomyelitis, with 56% of primary injuries and 79% of recurrent injuries having positive bone biopsies for osteomyelitis. Remove as minimal bone as possible.

Avoid radical ostectomy for bony prominences, as this can lead to skeletal instability, excessive bleeding, and pressure point redistribution

(as seen with unilateral ischiectomy with contralateral injury formation).

Contracture Release and Management of Spasticity

These strategies are important to optimize positioning before attempted final reconstruction.

Peripheral nerve blocks, epidural stimulator, baclofen pumps, rhizotomy

Consider medical rhizotomy (phenol) or surgical Tenotomy for limb contracture. Avoid hip release in wheelchair- bound patients because this will

interfere with transfers if flail extremity occurs.

Reconstruction

When considering flap reconstruction, it is essential to take into account that flap coverage does not address the root cause of the pressure injury (i.e., the complex interplay between ischemia, nutrition, infection, and overall health of the patient).

Careful patient selection with flap choice tailored to the

individual patient is the most critical step in improving overall patient outcomes in these difficult cases.

Avoid primary closure of pressure injuries due to high rates of breakdown and dehiscence.

Skin grafts will likely fail in this area because of lack of adequate tolerance to repeated pressure and shear.

There is no reported difference in success using myocutaneous compared to fasciocutaneous flaps

Despite the use of risk assessment tools and preventative risk reduction practice, complications and recurrence rates for flap coverage are high.

Management by Pressure Injury Location

Ischium

These defects common in patients seated for prolonged periods (i.e., wheelchair-bound patients).

High recurrence rates may be due to pressure and tension across joint while sitting. Recurrence rates of 19% to 33% have been reported for ischial pressure injuries after flap reconstruction.

Ischial flap design should take into consideration:

Ambulatory status

Possibility of future flaps due to high rate of recurrence

Avoid placing incisions over weight-bearing prominences

Consider flaps that can be readvanced subsequently: for example gluteal rotation or V-Y hamstring.

Avoid tension with these closures, as hip flexion can cause dehiscence.

Tensor fascia lata (TFL) may be considered, but it may be too thin distally.

Sacrum

These defects are common in supine or bedridden patients (such as with an acute illness).

Fasciocutaneous, musculocutaneous flaps are mainstay, with perforator flaps increasingly used.

Recurrence rates 17% to 21% depending on flap choice.

Sacral flap design should consider the depth of wound and potential need to fill dead space.

Most common musculocutaneous flap is based on gluteus maximus muscle. Can be superior or inferiorly based, with ability to rotate, advance, or turnover.

A fasciocutaneous flap or partial gluteus muscle may be needed in ambulatory patient as gluteus maximus muscle is not expendable.

Trochanter

These defects are common in patients positioned laterally for prolonged periods.

Flap reconstruction most commonly TFL, but pedicled ALT flap is also an option.

TFL blood supply consistent from underlying TFL muscle, but distal part of flap is random blood supply that may need to be delayed.

If there is a SCI below L3, the TFL can be sensate via L1–L3 by way of the lateral femoral cutaneous nerve.

Ears, Scapula, Heels

Ears and scapula may be amenable to primary closure or local tissue rearrangement.

Heels may require lifelong wound care, free flap coverage, or amputation depending on patient functional status and comorbid state.

Lower-extremity pressure injuries require careful assessment of vascular status and treatment of underlying ischemia.

Massive or Multifocal Pressure Injuries

It may not be logistically feasible to cover with local or distant flap(s) because of overwhelming size, medical comorbidities, and ability to tolerate and comply with postoperative management.

Local wound care indefinitely, with consideration of radical procedures such as Girdlestone resection

and multiple flap reconstruction, or amputation with total thigh flap closure.

Postoperative Considerations

Acute Management

Continue behavioral modifications and multidisciplinary, team-based management of patient comorbidities and postoperative care to optimize wound healing.

Place the patient on a pressure-relieving surface such as an air- fluidized bed or low-air loss mattress.

A period of bedrest is beneficial to allow surgical incisions to heal without disruption;

however, this must be considered in the context of the risks of bedrest such as pneumonia, VTE, and deconditioning.

Recommendations vary from 2 weeks to approximately 6 weeks depending on surgeon preference, extent of the reconstruction, and location of the injury.

Avoid sitting upright in bed. Resume sitting on a limited basis with gradual increase over several days.

Ensure patient is seated on an appropriate pressure-reducing surface.

DVT risk assessment: Patients with SCI are particularly susceptible to venous thromboembolism (VTE).

Risk stratification such as the Caprini Risk Assessment Model may be useful to guide perioperative VTE prophylaxis.

Although there is no evidence to suggest that there is higher risk of

postoperative VTE in the plastic surgery population with chronic SCI, physicians are encouraged to exercise vigilance in monitoring for venous thromboembolic events, as the incidence of VTE has been reported as high as 11% in the acute SCI population, despite receiving VTE prophylaxis.

Awareness of potential AD in SCI patients: Caused by disordered response to stimuli below the level of the lesion, such as bladder and bowel distension.

Clinical manifestations may include severe hypertension, increased intracranial pressure leading to seizures or hemorrhage, and cardiac

complications including myocardial ischemic, arrhythmias, and pulmonary edema.

Patients should be monitored for increase in blood pressure of >20%, headache, flushing, sweating, chills, nasal congestion, piloerection, and pallor. Patients with lesions above T6 are particularly susceptible

Postoperative Complications

Complication rates are high, with recurrence and wound dehiscence as the most common complications.

Recurrence rates as high as 80% are reported in some studies. 43,47 However, the literature examining complications and outcomes remains varied and is often limited to single-center retrospective analyses.

Unfortunately, postoperative complications further raise the already substantial cost of surgery and care for these pressure-related injuries .

Mortality Risk

The association between pressure injuries and increased risk of mortality is well documented, especially among elderly patients.

52 Patients who develop a pressure injury in an ICU setting have in-hospital mortality rates as high as 48%. 53 Further, an Agency for Health Research and Quality report demonstrated a 4.2% in-hospital mortality rate for patients with a primary diagnosis of pressure injury,

with an 11.6% in-hospital mortality rate in patients with secondary diagnosis of pressure injury, compared to only 2.6% mortality rate for all other diagnoses.

In a recent study examining the US-based

National Surgical Quality Improvement Program, Kwok et al found that over 3% of all patients undergoing pressure injury surgery for closure die within 30 days of the operation.

Age above 65 years, diabetes, and total functional dependency were associated with increased mortality risk;

however, given the data reporting style of the National Surgical Quality Improvement Program, exact cause of mortality could not be defined.

Pressure injuries are a marker of other underlying disease processes, and the overall risks of surgery must be carefully discussed with patients and family members.

Rehabilitation and Prevention

Recovery after surgical debridement and/or flap reconstruction may be best completed at a skilled nursing or rehabilitation facility to secure adequate assistance.

Psychiatry and social services may need to be involved to assist with home environment, safety, compliance, and provide resources for access to

services and supplies.

Prior to resuming sitting and returning to the home environment, the factors contributing to injury

development must be addressed:

Pressure injuries—depending on how much time is spent in bed versus chair, whether the patient has help at home, access to offloading devices or a special bed, and the age of their wheelchair, may

need referral to rehabilitation medicine and/or a homecare nurse for care.

Extremity injuries—depending on whether the wound resulted from pressure from a brace or footwear, and what they plan to use moving forward, in addition to their weight-bearing status, may need referral to podiatry or orthotics for proper fitting.

Long-Term Management

Some patients may never be surgical candidates, in which case long-term nonoperative management is indicated.

However, quality local wound care is labor-intensive, and social and financial considerations may limit long-term follow-up and compliance with regimen, ultimately leading to poor outcomes Chronic nonhealing injuries must be monitored for carcinoma (Marjolin ulcer).

It is highly likely that the pathogenesis underlying malignant transformation is linked to multiple factors of environmental

(unremitting irritation), immunological (avascular scar tissue interfering with lymphocyte mobility), and genetic nature (elevated protooncogenes).

The most common malignancy is an aggressive form of

squamous cell carcinoma, appearing anywhere from 2 to 25 years from time after the initial wound.

With a 2-year survival rate of 66% to 80%, and metastatic rate of 61% (versus those occurring in burn scar 34%),

treatment is wide surgical excision (lymph node dissection is not recommended unless clinical involvement).

If patients refuse surgery or the size location is deemed unresectable, chemotherapy and

radiation may be used

OBSERVATIONS AND DISCUSSIONS

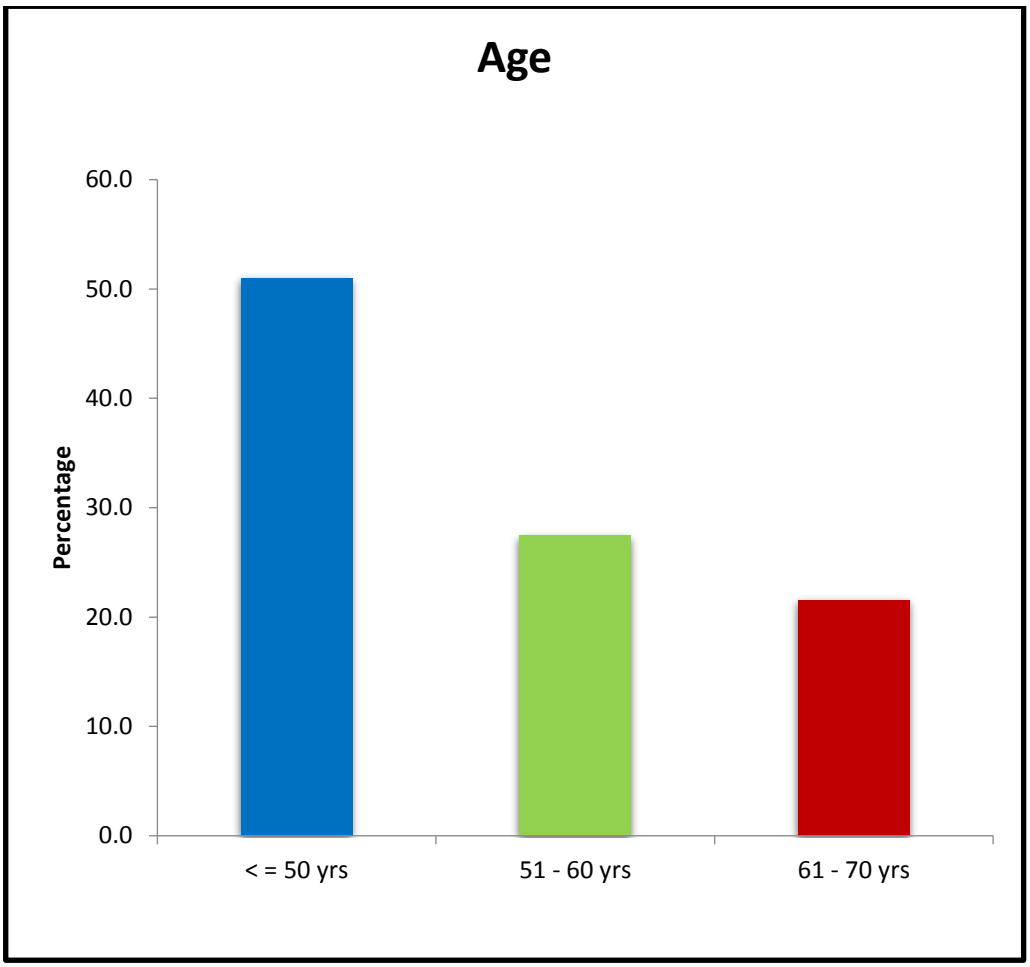
Based on these theories we evaluate the predictive value of braden scale in pressure sore in intensive care units.

A STUDY ON PREDICTIVE VALUE OF PRESSURE SORE BY THE BRADEN SCALE IN SURGICAL INTENSIVE CARE UNITS was done for **twelve months** among **50 patients** admitted in surgical intensive care units.

This review describes **the PREDICTIVE VALUE OF PRESSURE SORE BY THE BRADEN SCALE IN SURGICAL INTENSIVE CARE UNITS.**

Age distribution of the sample

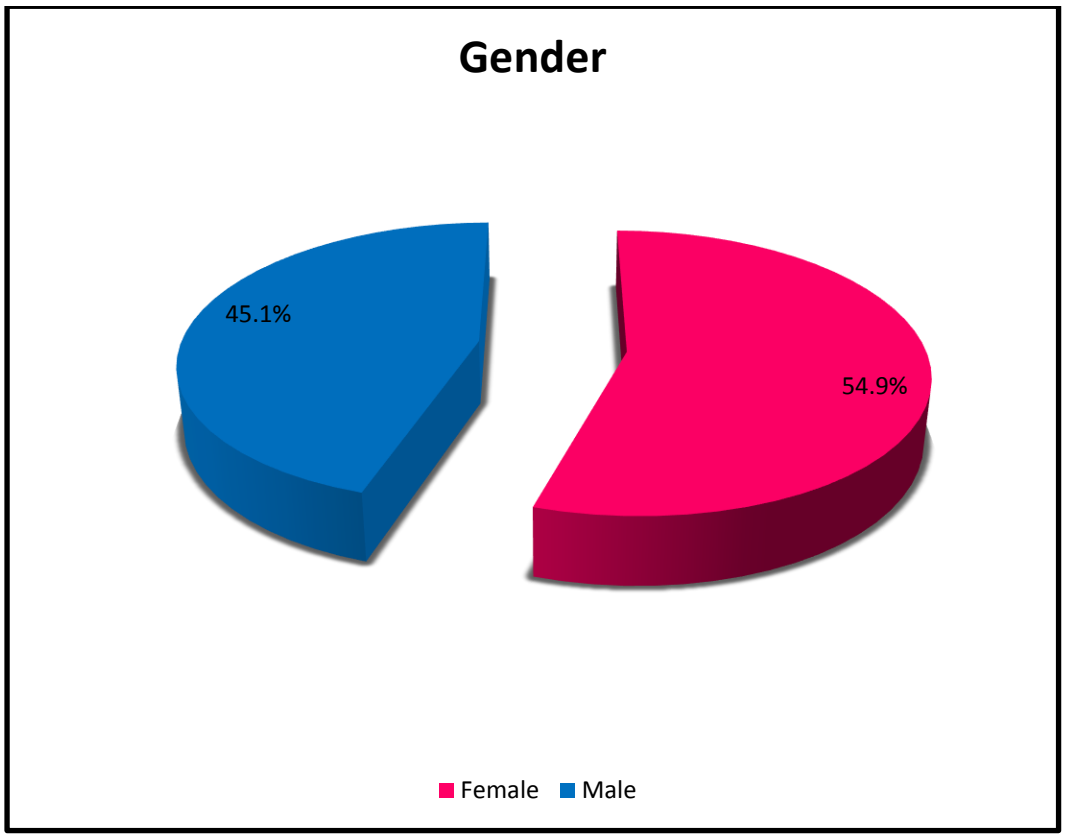
The following figure illustrates the age distribution of the participants in this study.



AGE			
		Frequency	Percent
	< = 50 yrs	26	51.0
	51 - 60 yrs	14	27.5
	61 - 70 yrs	11	21.6
	Total	51	100.0

The age distribution of sample is 51% of participants are below 50 years while 27.5% are in 51-60 years and 21.6% are in 61-70 years.

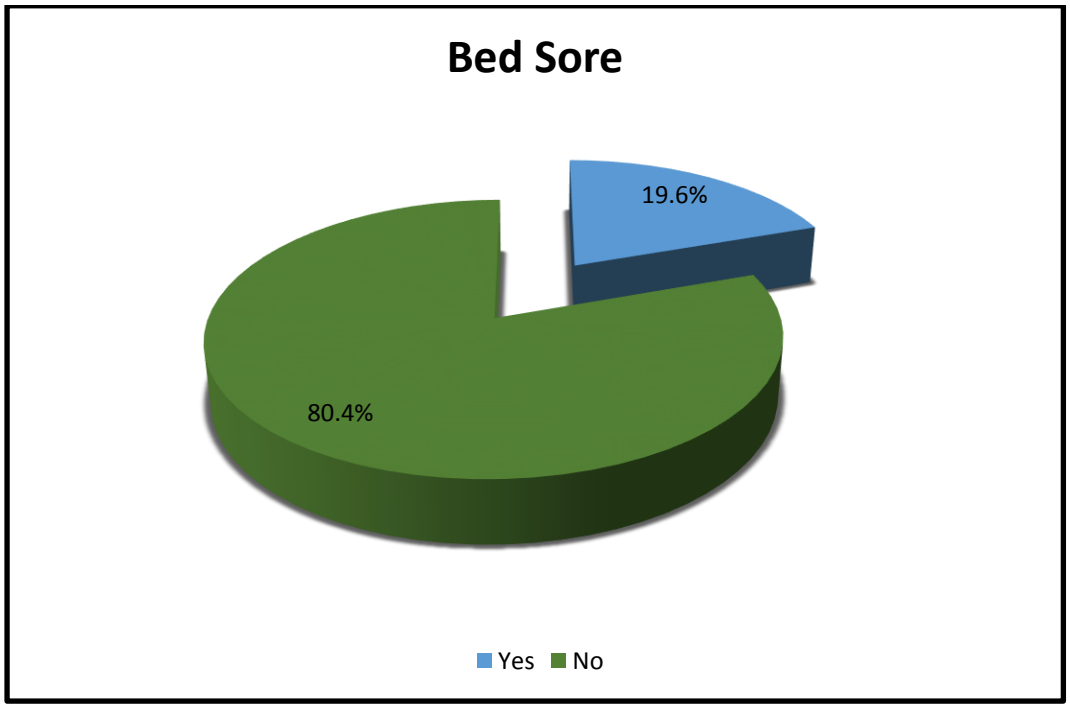
GENDER DISTRIBUTION OF SAMPLE:



Among the participants 54.9% were female patients and 45.1 were males.

GENDER			
		Frequency	Percent
	Female	28	54.9
	Male	23	45.1
	Total	51	100.0

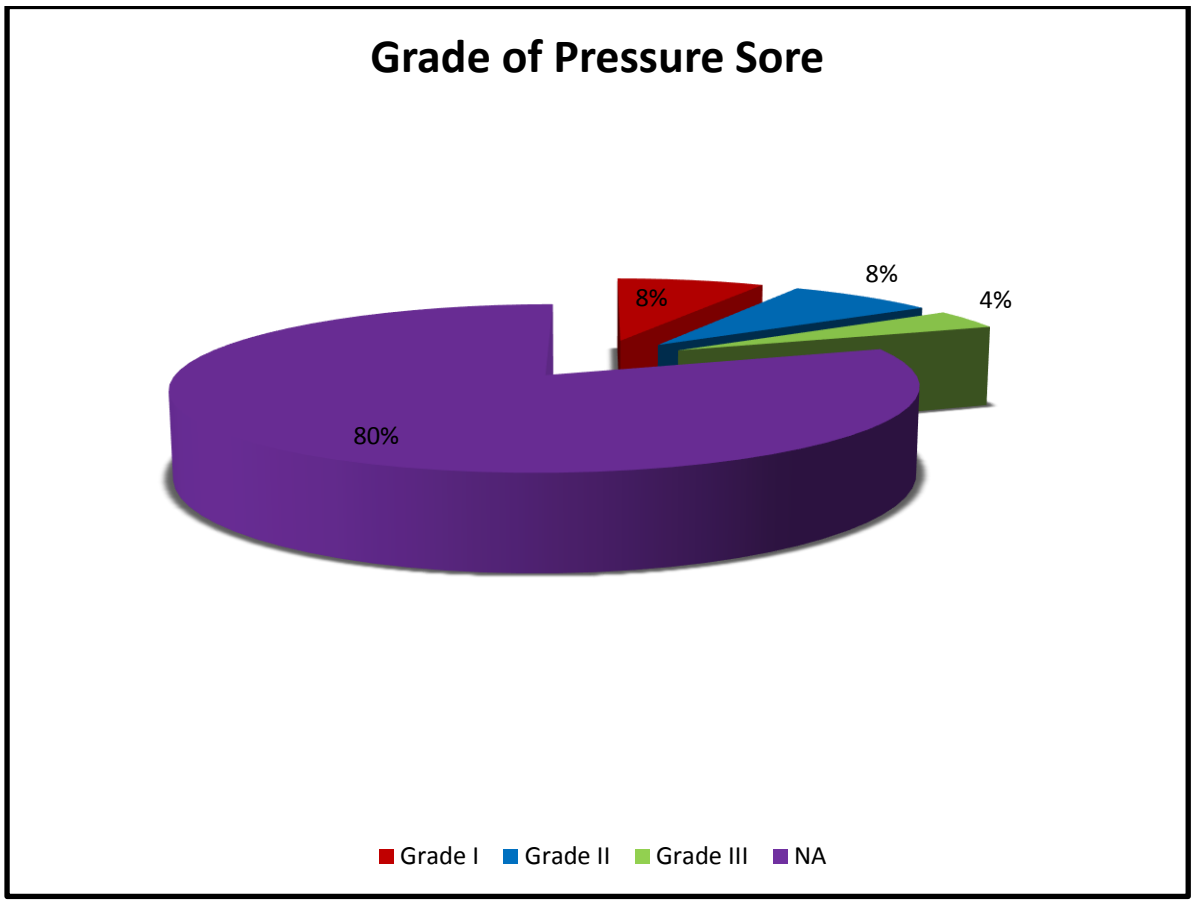
BED SORE FREQUENCY:



BED Sore			
		Frequency	Percent
	Yes	10	19.6
	No	41	80.4
	Total	51	100.0

Among the 51 participants 10 patients got bed sore which is 19.6% of the patient developed bed sore.

GRADE OF PRESSURE SORE:

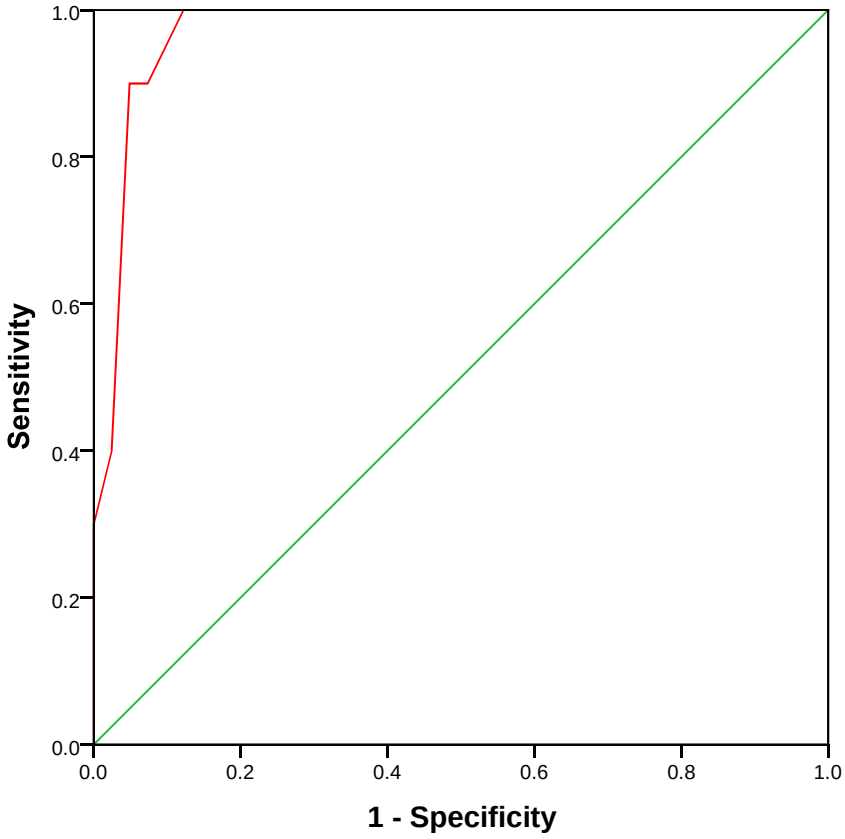


GRADE OF PRESSURE SORE			
		Frequency	Percent
	Grade I	4	7.8
	Grade II	4	7.8
	Grade III	2	3.9
	NA	41	80.4
	Total	51	100.0

Among the patients who developed pressure sore, totally 10 patients developed pressure sore, in which 7.8 percent developed grade1 pressure sore, 7.8 percent developed grade 2 pressure sore, and around 3.9 percent developed grade 3 pressure sore.

ROC CURVE:

ROC Curve	
Case Processing Summary	
BED Sore	Valid N (listwise)
Positive	10
Negative	41



The area under the curve with confidence interval 0f 95% is 0.971

With LB 0.929 and RB 1.000.

The p-value is 0.0005 which is highly significant.

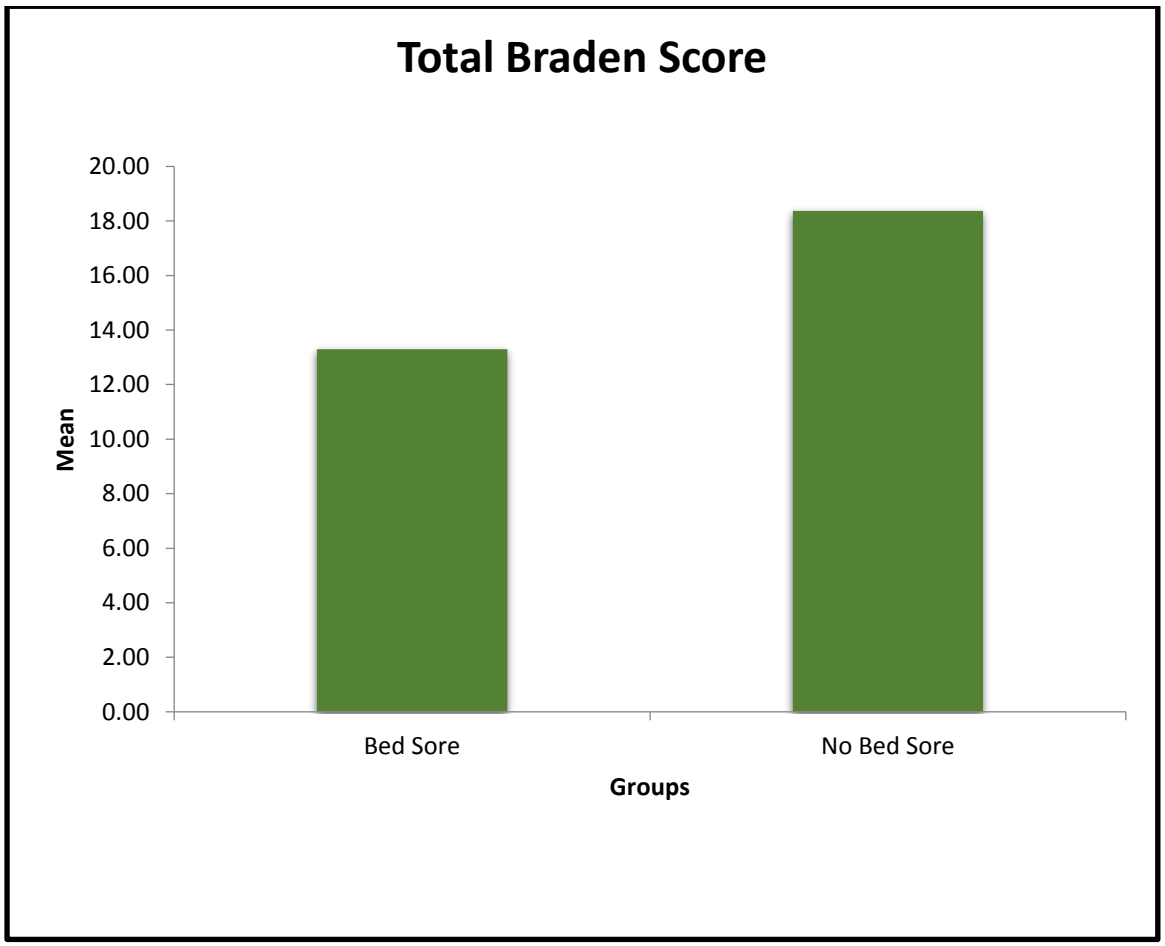
Area Under the Curve			
Area	P-value	95% C.I	
		LB	UB
.971	0.0005 **	.929	1.000
** Highly Significant at P < 0.01 level			

Coordinates of the Curve		
Positive if Less Than or Equal To	Sensitivity	1 – Specificity
10.000	0.000	0.000
11.500	.200	0.000
12.500	.300	0.000
13.500	.400	.024
14.500	.900	.049
15.500	.900	.073
16.500	1.000	.122
17.500	1.000	.244
18.500	1.000	.439
19.500	1.000	.732
20.500	1.000	.951
22.000	1.000	1.000

Cut off	16
Sensitivity	90%
Specificity	93.70%

The sensitivity of the scale is 90% and specificity of the scale is 93.70% with the cut off value at 16.

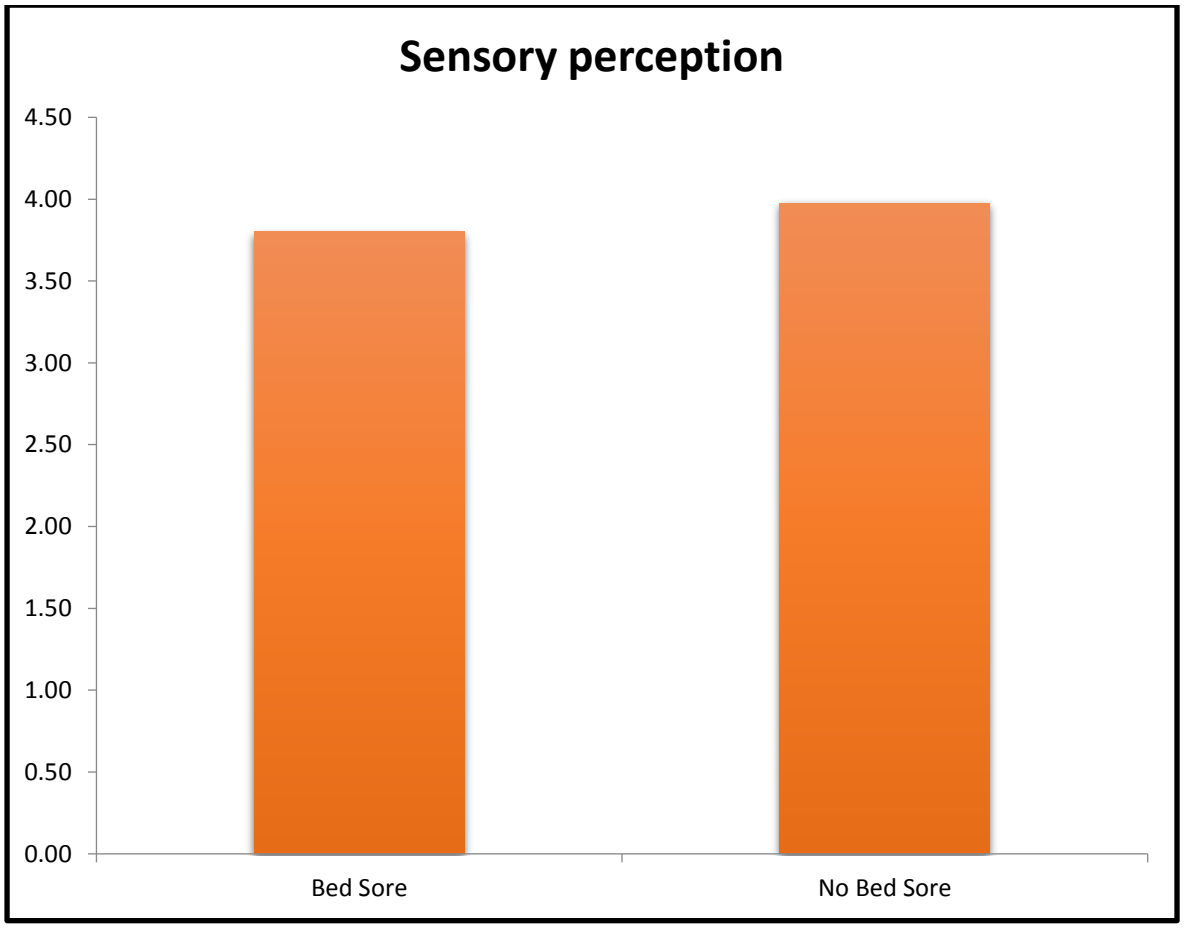
TOTAL BRADEN SCALE SCORE ON BED SORE:



Comparison of total braden scale score reveals S.D of 1.57 and p-value of 0.0005 for those who developed pressure sore which is highly significant.

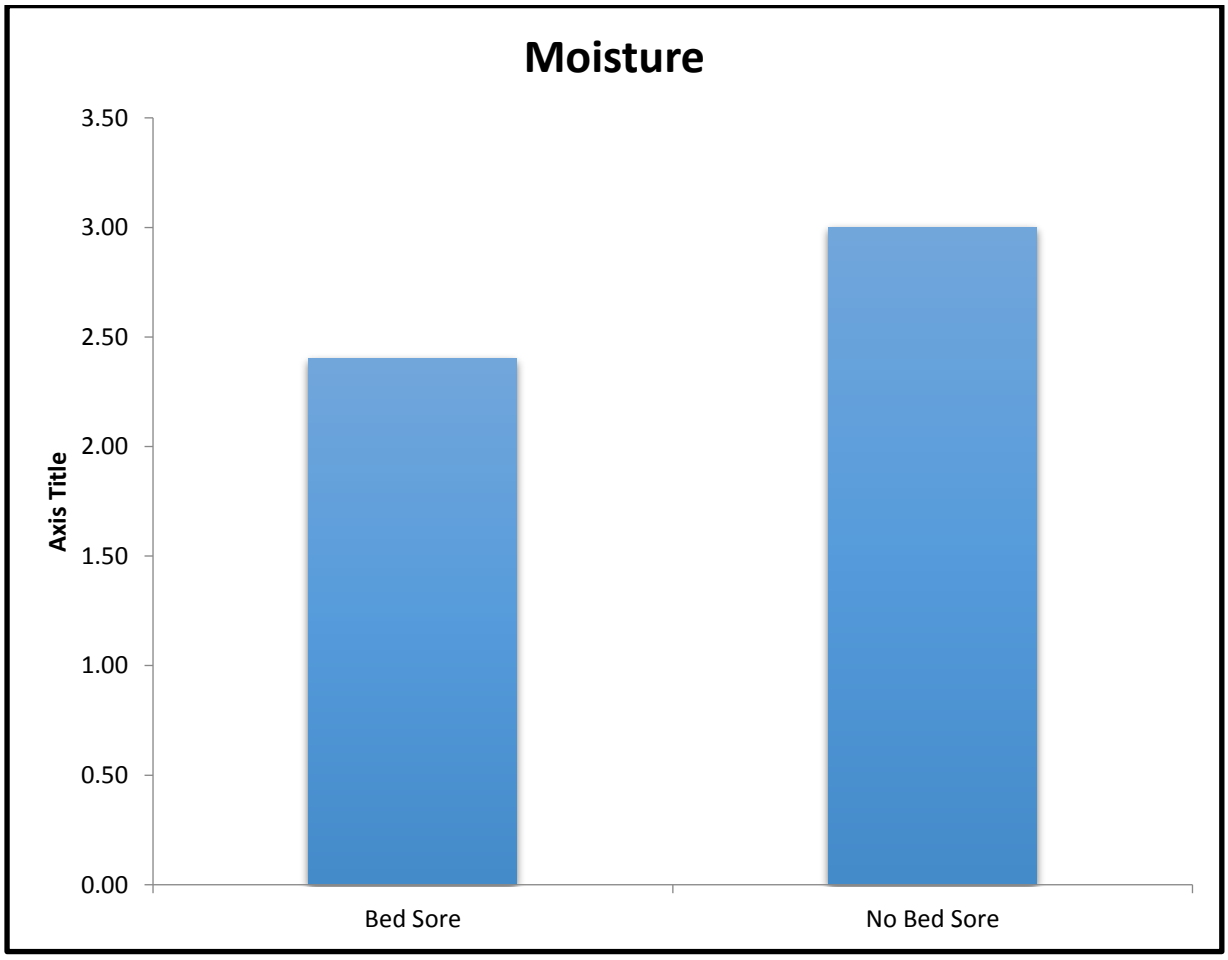
Comparison of Total Braden Score by Unpaired T-Test						
BED Sore		N	Mean	S.D	t-value	P-value
TOTAL BRADEN SCORE	Bed Sore	10	13.30	1.57	8.332	0.0005 **
	No Bed Sore	41	18.37	1.76		
**** Highly Significant at P < 0.01 level**						

INFLUENCE OF SENSORY PERCEPTION ON PRESSURE SORE:



Comparison of Bed Sore by Unpaired T-Test						
BED Sore		N	Mean	S.D	t-value	P-value
SENSORY PERCEPTION	Bed Sore	10	3.80	.42	1.296	0.225 #
	No Bed Sore	41	3.98	.16		
# No Statistical Significance at P>0.05 level						

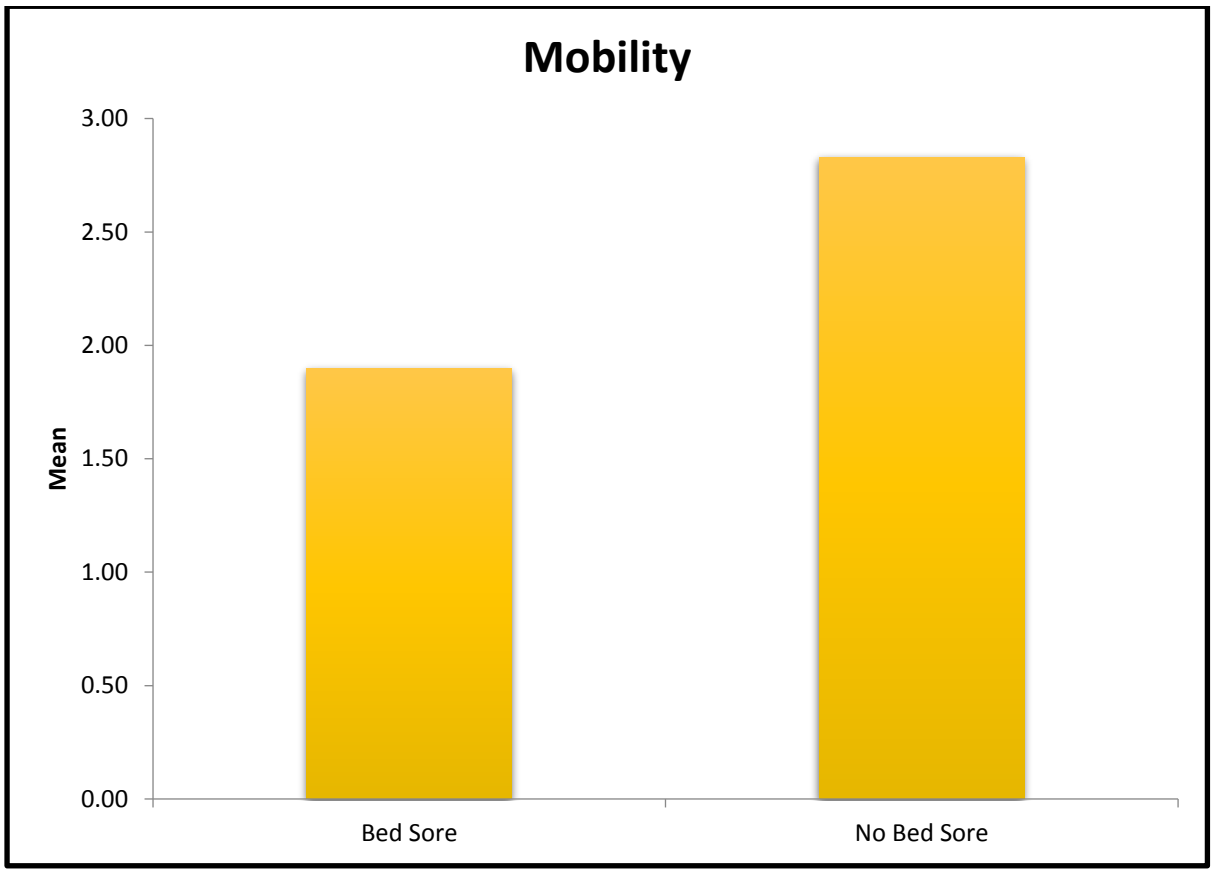
INFLUENCE OF MOISTURE ON PRESSURE SORE:



The subscale moisture influencing on patient who developed bed sore came with the mean value of 2.40, S.D of 0.52 and p-value of 0.001 which is significant.

Comparison of Bed Sore by Unpaired T-Test						
BED Sore		N	Mean	S.D	t-value	P-value
MOISTURE	Bed Sore	10	2.40	.52	3.382	0.001 **
	No Bed Sore	41	3.00	.50		
**** Highly Significant at P < 0.01 level**						

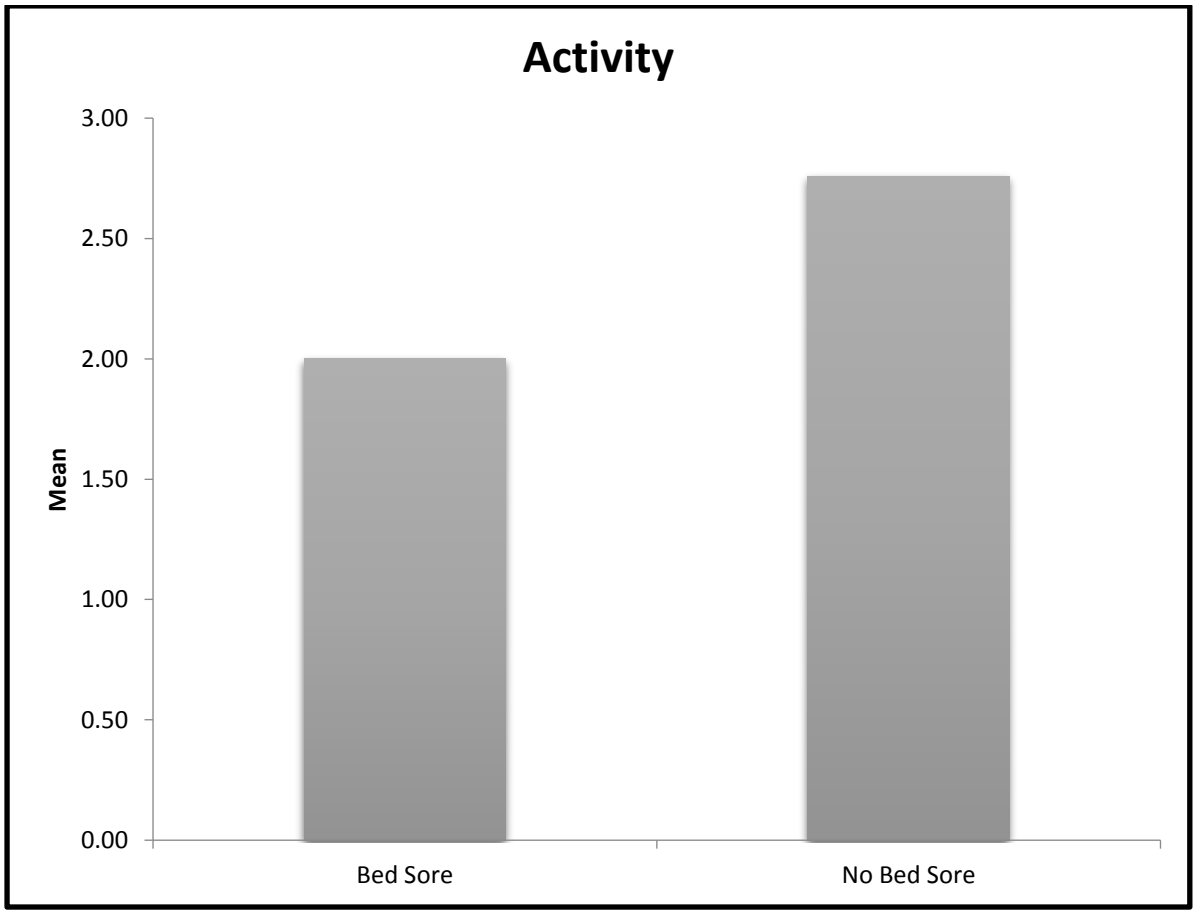
INFLUENCE OF MOBILITY ON PRESSURE SORE:



The subscale mobility influencing on patient who developed bed sore came with the mean value of 1.90, S.D of 0.32 and p-value of 0.0005 which is highly significant.

Comparison of Bed Sore by Unpaired T-Test						
BED Sore		N	Mean	S.D	t-value	P-value
MOBILITY	Bed Sore	10	1.90	.32	6.847	0.0005 **
	No Bed Sore	41	2.83	.59		
** Highly Significant at P < 0.01 level						

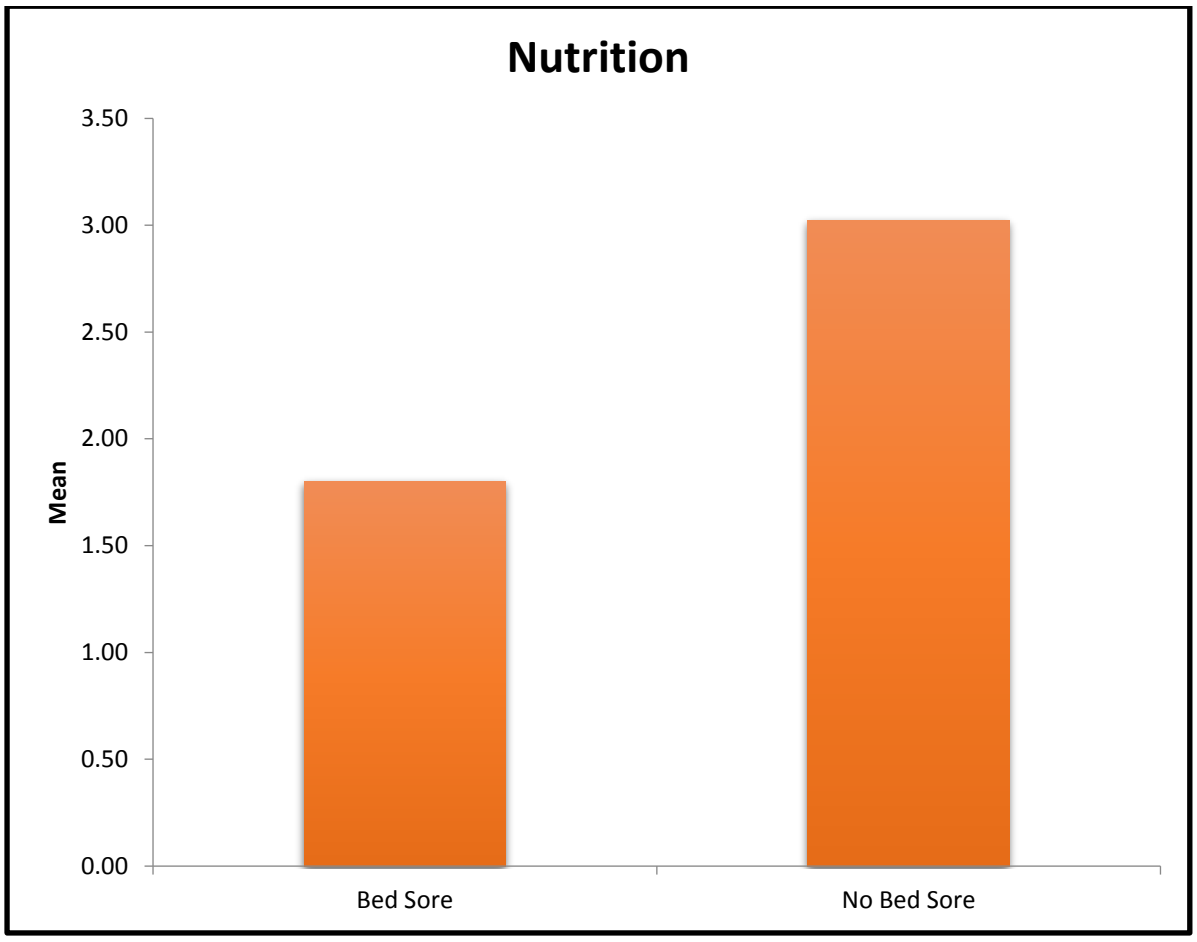
INFLUENCE OF ACTIVITY ON PRESSURE SORE:



The subscale activity influencing on patient who developed bed sore came with the mean value of 2.00, and p-value of 0.0005% which is highly significant.

Comparison of Bed Sore by Unpaired T-Test						
BED Sore		N	Mean	S.D	t-value	P-value
ACTIVITY	Bed Sore	10	2.00	.00	11.136	0.0005 **
	No Bed Sore	41	2.76	.43		
**** Highly Significant at P < 0.01 level**						

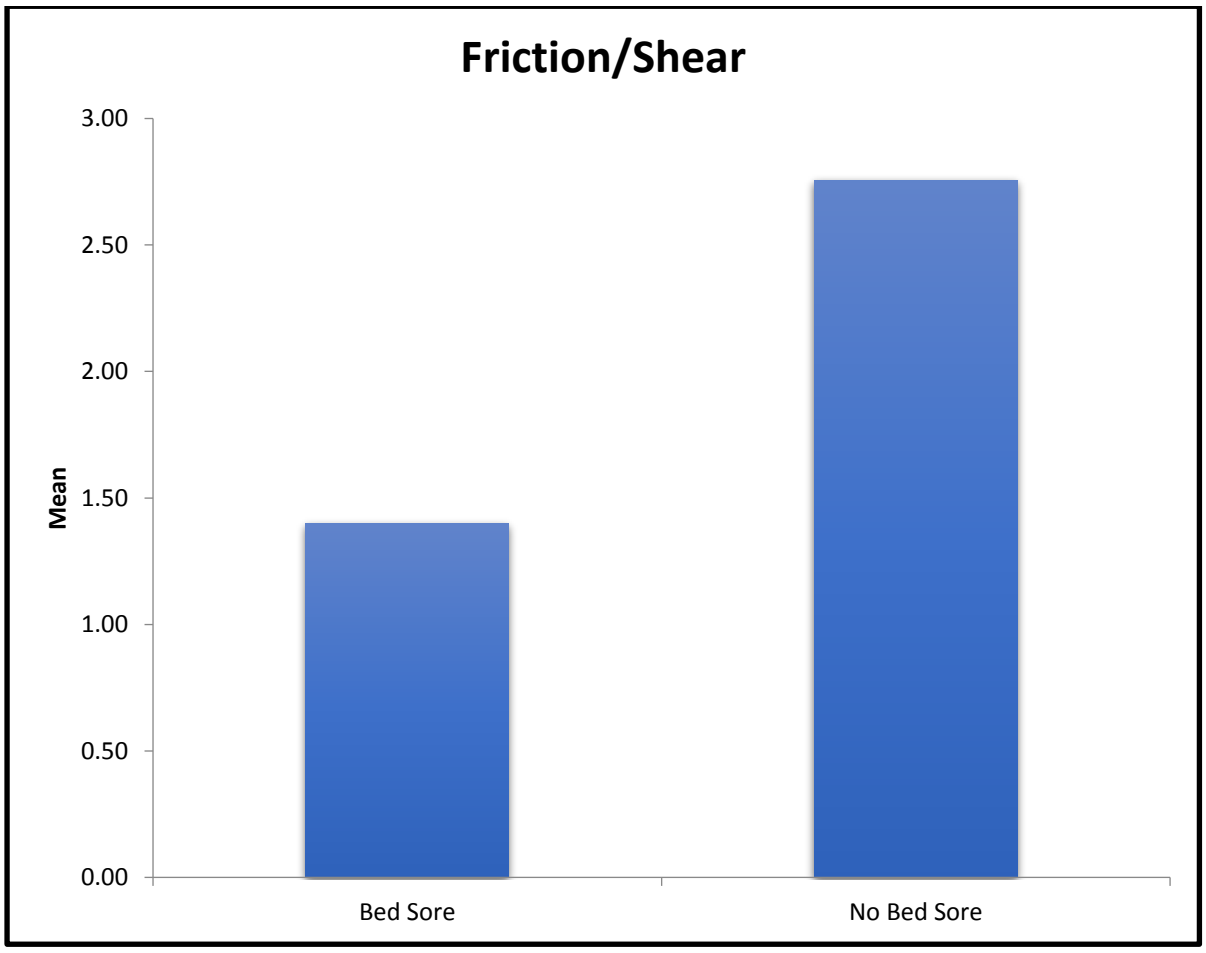
INFLUENCE OF NUTRITION ON PRESSURE SORE:



The subscale nutrition influencing on patient who developed bed sore came with the mean value of 1.80, S.D of 0.63 and p-value of 0.0005 which is highly significant.

Comparison of Bed Sore by Unpaired T-Test						
BED Sore		N	Mean	S.D	t-value	P-value
NUTRITION	Bed Sore	10	1.80	.63	5.969	0.0005 **
	No Bed Sore	41	3.02	.57		
**** Highly Significant at P < 0.01 level**						

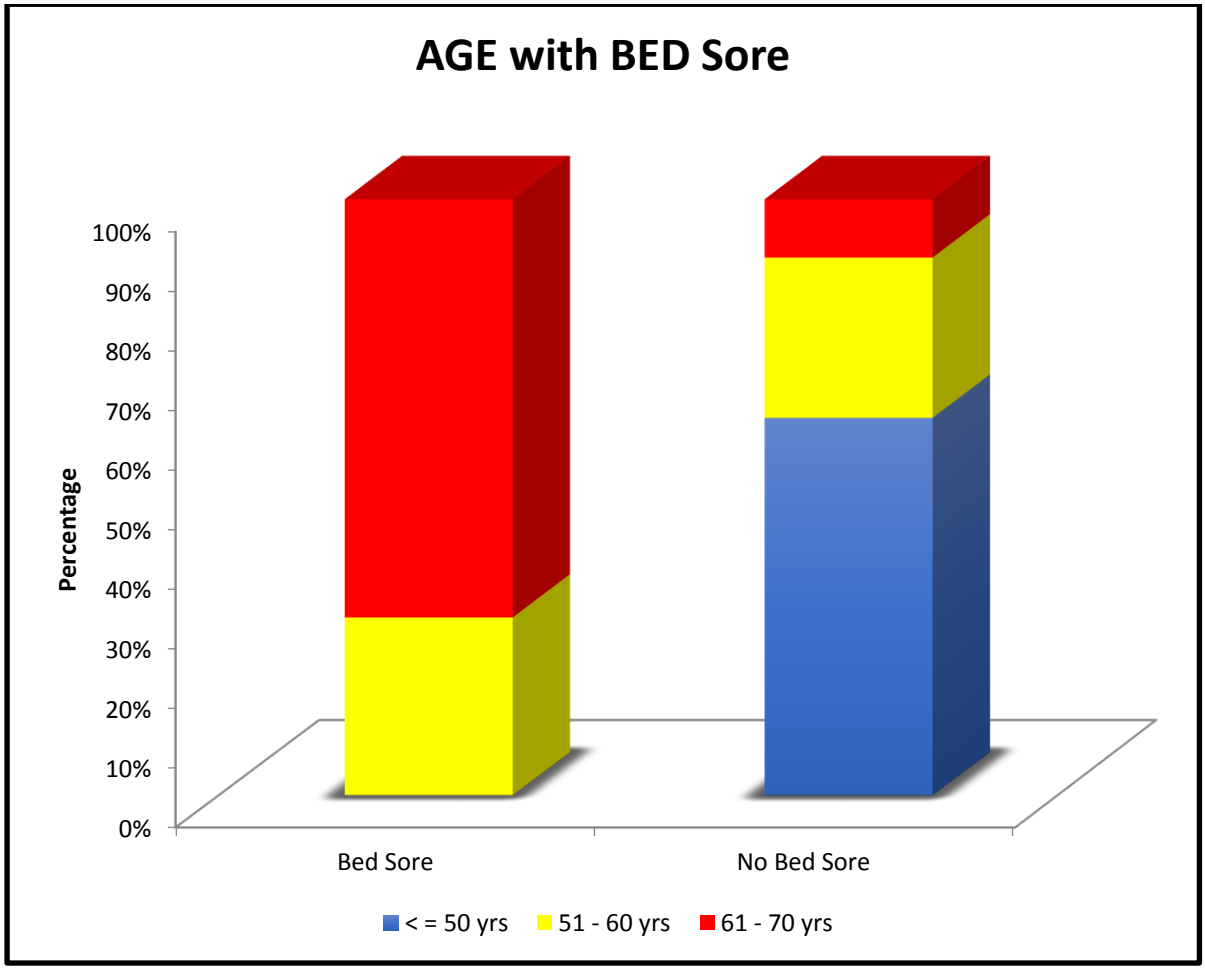
INFLUENCE OF FRICTION AND SHEAR ON PRESSURE SORE:



The subscale friction and shear influencing on patient who developed bed sore came with the mean value of 1.40, S.D of 0.52 and p-value of 0.0005 which is highly significant.

Comparison of Bed Sore by Unpaired T-Test						
BED Sore		N	Mean	S.D	t-value	P-value
FRICTION/SHEAR	Bed Sore	10	1.40	.52	7.203	0.0005 **
	No Bed Sore	41	2.76	.54		
**** Highly Significant at P < 0.01 level**						

AGE OF THE PATIENT AND DEVELOPMENT OF BED SORE:



Around 70% of the patients in the age group 61-70 years developed bed sore.

And 30% of the patients in the age group 51-60 years developed bed sore.

No patient below 50 years developed pressure sore.

AGE with BED Sore							
			BED Sore		Total	□ 2 - value	P-value
			Bed Sore	No Bed Sore			
AGE	< = 50 yrs	Count	0	26	26	19.898	0.0005 **
		%	0.0%	63.4%	51.0%		
	51 - 60 yrs	Count	3	11	14		
		%	30.0%	26.8%	27.5%		
	61 - 70 yrs	Count	7	4	11		
		%	70.0%	9.8%	21.6%		
Total		Count	10	41	51		
		%	100.0%	100.0%	100.0%		
**** Highly Significant at P < 0.01 level**							

RESULTS

AGE:

The age distribution of sample is 51% of participants are below 50 years while 27.5% are in 51-60 years and 21.6% are in 61-70 years.

Around 70% of the patients in the age group 61-70 years developed bed sore.

And 30% of the patients in the age group 51-60 years developed bed sore.

No patient below 50 years developed pressure sore.

INFLUENCE OF SUBSCALES ON PRESSURE SORE:

The subscale moisture influencing on patient who developed bed sore came with the mean value of 2.40, S.D of 0.52 and p-value of 0.001 which is significant.

The subscale mobility influencing on patient who developed bed sore came with the mean value of 1.90, S.D of 0.32 and p-value of 0.0005 which is highly significant.

The subscale activity influencing on patient who developed bed sore came with the mean value of 2.00, and p-value of 0.0005% which is highly significant.

The subscale nutrition influencing on patient who developed bed sore came with the mean value of 1.80, S.D of 0.63 and p-value of 0.0005 which is highly significant.

The subscale friction and shear influencing on patient who developed bed sore came with the mean value of 1.40, S.D of 0.52 and p-value of 0.0005 which is highly significant.

except subscale sensory perception all the other scales prove to be highly significant on developing pressure sore. Other subscale such as moisture, mobility, activity, nutrition, friction and shear are highly significant with p-value <0.01.

INFLUENCE OF TOTAL BRADEN SCORE:

Comparison of total braden scale score reveals S.D of 1.57 and p-value of 0.0005 for those who developed pressure sore which is highly significant.

The sensitivity of the scale is 90% and specificity of the scale is 93.70% with the cut off value at 16.

CONCLUSIONS

Comparison of total braden scale score reveals S.D of 1.57 and p-value of 0.0005 for those who developed pressure sore which is highly significant.

The sensitivity of the scale is 90% and specificity of the scale is 93.70% with the cut off value at 16.

Thus the braden scale is highly significant and has high predictive value in predicting pressure sore in intensive care units.

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MASTER CHART

s.no	NAME	AGE	IP.NO	TOTAL BRADEN SCORE	SENSORY PERCEPTION	MOISTURE	MOBILITY	ACT
1	VEERASAMY	60/M	1888343	14	4	3	1	
2	RAMAKRISHNAN	50/M	1922794	19	4	3	3	
3	SOORALI	70/M	1922835	13	3	3	2	
4	DINESH	41/M	1866203	20	4	3	4	
5	RAJ	48/M	1873987	21	4	4	4	
6	RAJIVI	40/F	1866862	18	4	3	3	
7	GOVINDARAJ	58/M	1881676	16	4	3	2	
8	RAJASEKAR	55/M	1882015	18	4	3	3	
9	GANDHI	54/M	1879577	17	4	3	3	
10	PARIMALA	55/F	1880261	19	4	3	3	
11	JAYACHITHRA	40/F	1881913	17	4	3	3	
12	KASTHURI	70/F	1881791	14	4	3	2	
13	ROSEMARY	40/F	1880341	20	4	3	4	
14	JANCYRANI	55/F	1890012	17	4	3	2	
15	MEGALA	52/F	1901303	20	4	3	4	
16	SRINIVASAN	42/M	1904953	19	4	3	3	
17	JANAKI	40/F	1914859	18	4	3	3	
18	SURAJ SINGH	40/M	1942106	20	4	4	3	
19	DESAPATTU	75/F	1950768	11	3	2	2	
20	SRINIVASAN	61/F	1872003	15	4	2	2	
21	MURUGAN	45/M	1878942	19	4	3	3	
22	SEKAR	55/M	1881823	18	4	3	3	
23	DHANALAKSHMI	42/F	1883806	18	4	3	3	
24	KARUPPAN	67/M	1902372	14	4	2	2	
25	JOHN PRABHAKAR	40/M	1913421	20	4	3	3	
26	HEMAVATHY	44/F	1914887	19	4	3	3	
27	THANGAMMAL	65/F	1914794	17	4	3	2	
28	MAJITH	48/F	1921337	14	4	2	2	
29	PALAYAM	58/F	1925822	12	4	2	2	
30	SELVAM	49/F	1930998	19	4	3	3	
31	DILLIBABU	40/M	1933050	18	4	3	2	
32	SYED SULAIMAN	43/M	1935987	20	4	3	3	
33	THAYAMMAL	45/F	1935987	20	4	4	3	
34	KANAGA	80/F	1937370	11	3	2	2	
35	LALITHA	57/F	1942131	19	4	3	3	
36	RANI	52/F	1948519	21	4	4	3	
37	MAHESHWARI	43/f	1848064	19	4	3	2	
38	SHANTHI	40/F	1846883	20	4	3	3	
39	PADMA	59/F	1853433	17	4	3	2	
40	PATTUSAMY	77/M	1853489	16	4	2	2	
41	REVATHY	44/f	1855476	19	4	3	3	
42	SHEIK MOHAMMED	68/M	1855540	14	4	3	2	
43	DEIVANAI	42/f	1862126	19	4	4	3	

44	NAGESHWARI	54/F	1863713	16	4	2	3	
45	SHANTHI	55/F	1865368	19	4	2	3	
46	KRISHNAN	65/M	1866378	13	4	2	2	
47	KARUNANIDHI	43/M	1868751	19	4	3	3	
48	RAMACHANDRAN	70/M	1845071	14	4	2	2	
49	PANDIYAN	40/M	1955599	20	4	3	3	
50	NAVANEETHAM	40/f	1918291	18	4	3	2	
51	PACHAI	50/M	1937481	18	4	3	2	