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Effect of Olive Oil Massage in Prevention of Pressure Ulcer among Hospitalized Immobilized Elderly

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Abstract
Background: *Bedsores are injuries to skin and underlying tissues caused by prolonged pressure. It is more common to occur among immobilized elderly as a result of age related change in the different system. Several nursing measures can be used to eliminate the occurrence of pressure ulcer. Olive oil is an herbal product with potential preventive effects to prevent bedsores because of its numerous medical properties.*
Aim: *This study is carried out to evaluate the effect of the olive oil massage in prevention of bedsores among hospitalized immobilized elderly patients.*
Subjects and Methods: *quasi-experimental research design was utilized, convenient subject including 96 elderly female patients aged 60 years old and more, who are complete immobilized, absent of bed sores on admission, and admitted at the period of six months (8 August 2014 to 1 January 2015)in medical and surgical departments at the selected hospital in Makkah Al-Mukarramah. The researchers perform back massage with olive oil three times/day.* ***Tools:****The data was collected using an assessment sheet developed by researcher, Glasgow Coma Scale for level of consciousness assessment and Braden scale for bedsores assessment.*
Results: *The mean age of the studied subject's (73.62 ± 9.08),about half of them diagnosed with musculoskeletal disorders. According to Braden scale assessment shows that after using of olive oil massage, olive oil prevents occurrence of bedsores in 77% of the studied subjects.*
Conclusion: *There is positive effect of using olive oil massage to prevent bed sores among hospitalized immobilized elderly.*
Recommendation: *Further studies with larger sample sizes are required to generalize the findings of the study.*
Keywords: *Bedsores, Olive oil, Braden scale, Elderly, Bedridden*

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I. Introduction

People over age 60 numbered around 600 million worldwide in 2000, and these figures are expected to reach 1.2 billion by 2025 and 2 billion by 2050, about two thirds of them lives in the developing world.At Saudi Arabia, the proportion of the elderly population to total population was 5.8% in 2000; it is expected to reach 8.7% by 2026 and 15.0% by 2050. This increased in number of older people in Saudi Arabia and developing countries presents numerous challenges to health care system, and especially to health care workers providing services to older clients.Pressure ulcers (PU) are considered as an important issue affecting mainly to immobilized elderly patients, pressure ulcers is a preventable. Its occurrence will increase the burden on the professional nursing staff as well as health services[1, 2,3].The prevalence of pressure ulcers is some of the most representative indicators of the quality of nursing care. The data on pressure ulcer prevalence in Spanish hospitals indicate that it occurs in (8.24%) this are very similar to its neighboring countries, Italy (8.3%), France (8.9%), Germany (10.2%), and Portugal (12.5%) while atJordan (12%) and Sweden (23.0%). The highest records of prevalence are registered in Ireland (18.5%), Belgium (21.1%), the United Kingdom (21.9%), Denmark (22.7%),and Wales (26.7%)[4, 5, 6]Pressure sores (bedsores) are an injury to the skin and underlying tissue. They can range from mild reddening of the skin to severe tissue damage and sometimes infection that extends into muscle and bone[7].An elderly's potential to develop pressure ulcers may be influenced by the following risk factors: reduced mobility or immobility; sensory impairment; acute illness; level of consciousness; extremes of age; previous history of pressure damage; vascular disease; severe chronic or terminal illness and malnutrition. External risk factors include pressure, shearing, friction, medication, and moist or soiled skin. Preventing pressure ulcer is an opportunity to reduce harm to patients and health care costs [8].Many elderly normal age-related changes can increase the risk of pressure ulcer. The intrinsic aging of skin as thinning of skin, decrease in lipids, decrease in cell numbers, and decrease in collagen,also the extrinsic aging of

skin asdecades of exposure to ultraviolet irradiation (photo aging), cigarette smoke, and otherenvironmental agents lead to significant skin damage. All these changes canincrease the risk for pressure ulcer development among immobile elderly. The changesin cardiovascular system affectthe blood flow, poor circulation allows a pressure ulcer to develop,the tissue can literally "starve" for oxygen and nutrients andthe result is that the tissue dies [(9)].The loss of sensory perception or impaired level of consciousness prevents the patient from perceiving the pain of pressure and the need to relieve it. Similarly, neurological conditions causing paralysis or motor weakness prevents change of posture when pressure is exerted [(10)].Adequate nutrition, positive nitrogen balance, hydration, vitamins and trace elements are critical factors in the prevention of pressure ulceration. The elderly with negative nitrogen balance are at a high risk of tissue breakdown and delayed healing. Hemoglobin is considered as good indicator of the elderly's nutritional status as it required for tissue oxygenation. As decreased Hemoglobin, oxygen carrying capacity of blood is reduced and hence, there is decreased supply of oxygen to the tissues. This will precipitate tissue necrosis in ischemic tissue because of mechanical pressure. So,maintenance of elderly normal Hemoglobin can decrease risk of pressure ulcer[(11)].Researches on olive oil has documented a wide variety of anti-inflammatory mechanisms, reconstruction of the cell membranes, providing higher smoothness to the dermis by restoring the skin humidity levels, thus moisturizing the skin and providing it with elasticity.Moreover, it has the Vitamin E, phenolic compounds and chlorophyll that have a high antioxidant power and therefore, anti-aging effects that accelerate the dermis healing process.Daily skin massage with Olive oil is prescribed for the relief of swelling, pressure ulcer, arthritis, and muscle pain. Therefore, this study conducted [(12, 13)].

II. Aim of the study

This study aimed to determine the effect of olive oil massage in prevention of bedsores among hospitalized immobilized elderly.

2.1 Hypothesis

The olive oil massage preventing pressure ulcer among hospitalized immobilized elderly.

III. Subjects And Methods

3.1 Research design

Quasi-experimental design used to carry out this study.

3.2 Setting

The study was conducted on the medical and surgical departments at selected hospital in Makkah Al-Al-Mukarramah.

3.3 Subjects

A convenient sample of 96 hospitalized immobilizedelderlies admitted to the selected hospital at the period of six months (8 August 2014– 1 January 2015) and fulfills these inclusion criteria.

3.4 Inclusion criteria

1. Age 60 years old and more.
2. Female hospitalized elderly.
3. Immobile.
4. Has no sign of bedsores on admission.
5.

3.5 Tools of data collection:

Three tools were used to collect the data

3.6 A-Assessment sheet:

This tool is developed by researcher after review of literature and it includes the following parts:

1. Socio demographic data, which include the following: name, age, gender, social status, level of education, present of caregiver.
2. Past history of diabetes mellitus, cerebrovascular disease, skin diseases and neurological diseases.
3. Reason of admission to the hospital.
4. Physical assessment includes the following: vital sign, skin assessment, cardiovascular system assessment (which includes assessment of central or peripheral cyanosis and delayed capillary refill time), urinary system and bowel assessment.
5. Amount of fluid intake.
6. Selected laboratory finding for (W.B.Cs and Hb.).

3. 7 B- Glasgow Coma Scale

The Glasgow Coma Scale (GCS) is a reliable and universally comparable way of recording the conscious state of a person. Three types of response are measured, and added together to give an overall score. The lower the score the lower the patient's conscious state. The GCS is used to help predict the progression of a person's condition. The three responses measured aremotor response maximum score of 6,verbal response maximum score of 5 and Eye openingmaximum score of 4. The lowest score for each category is 1, therefore the lowest totalscore is 3 (no response to pain + no verbalization + no eye opening).A GCS of 8 or less considered as unconscious, from 9-12 GCS score is considered as semiconscious and conscious if GCS total score ranged from 13-15. Grades of Best Motor Response include 6 items. (6) Carrying out request (obeyingcommand) -patient does simple things you ask, (5) Localizing response to pain, (4) Withdrawal to pain - pulls limb away from painful stimulus, (3) Flexor response to pain - pressure on nail bed causes abnormal flexion of limbs - decorticate posture, (2) Extensor posturing to pain - stimulus causes limb extension - decelerate posture, and (1) No response to pain. Grades of Best Verbal Response include 5 items. (5) Oriented - patient knows who and where they are, and why, and the year, season and month. (4) Confused conversation - patient responds in conversational manner, with some disorientation and confusion. (3) Inappropriate speech - random or exclamatory speech, with no conversational exchange. (2) Incomprehensible speech - no words uttered; only moaning. (1) No verbal response. Grades of Eye Opening include 4 items. (4)Spontaneous eye opening, (3) Eye opening in response to speech - that is, any speech or shout, (2) Eye opening in response to pain, (1) No eye opening [14, 15].

3.8C- Braden scale for bedsores assessment

It is used to assess the patient's level of risk for development of pressure ulcers. The evaluation is based on six indicators: sensory perception, moisture, activity, mobility, nutrition, and friction or shear.

3.9 Braden Scale Scoring:

The Braden Scale is a summated rating scale made up of six subscales scored from 1-3 to test category of friction and shear or from 1-4 to test categories of sensory perception, moisture, activity, mobility and nutrition. The total scores that ranges from 6-23. A lower Braden Scale Score indicates a lower level of functioning and, therefore, a higher level of risk for pressure ulcer development. A cut-off score of 19 or more, for instance, would indicate that the patient is at low risk that is no need for treatment at this time. A cut-off score of 19 or low subscale scores should be used for identifying at risk for patients [16, 17].

IV. Methods

1. Officialpermission to conduct the study was obtained from the administration of the selected hospital at Makkah Al-Mukarramah after explanation of the aims of the study.
2. Assessment sheet was developed by researchers.
3. A jury of 5 experts in the field of nursing was done to ascertain the content validity of the tool and necessary modifications were carried out accordingly.
4. A pilot study was conducted to test the clarity and applicability of tools. In accordance to the pilot study a needed modification was done.
5. The actual fieldwork was carried out for six months starting from (8 August 2014 – 1 January 2015) for data collection. The researchers were available at selected hospital to perform olive oil massage, three times/day consequently. Braden scale assessment was done daily for five days after explanation of using olive oil in the massage, the first massage carried out by researchers and the rest done by caregiver. The average time needed for completion of each massage around (5-10 minutes).

4.1 Ethical consideration:

1. The administrator and elderly was secured that all the gathered information will be confidential and used for research purpose only.
2. Oral informed consent was obtained from elderly prior to their inclusion in the study.

   The subject (elderly) can withdraw from the study at any time.

V. Data Analysis

Data entry and analysis were performed using Statistical Package for Social Sciences SPSS (version 20.0), descriptive statistics include frequencies, percentage, the arithmetic mean ($\overline{X}$) and standard deviation (SD) were used as summary statistics.As well as correlation andChi-square tests were used to associate and to compare proportions for categorical variables. Results were considered to be significant at $p<0.05$ and $p<0.01$.

VI. Results

Table (1) demonstrates the distribution of the studied subjects according to their socio demographic characteristics. The table shows that the mean age of the elderly female was73.62 ± 9.08 years. 45.8% of the subjects were widow, 43.8% of them were married. Regarding the educational level more than half of the study subjects 62.5% were illiterate. Most of the study subjects 97.9% have their caregiver.Figure (1) describes the distribution of the studied subject according to their past history, more than half of elderly 56.25% had diabetes mellitus, while 25% of them had hypertension, and 27.08% of the subjects were a case of cerebrovascular accident (CVA). Figure (2) showsthe distribution of the studied subject according to their reason of admission to the hospital; 31.8% of the elderly have musculoskeletal disorder followed by 25.5% of them with neurological disorder, while 17.2% of them have cardiovascular disorder, and endocrine, urinary, respiratory represented by 12.5%, 9.6%, and 3.4%, respectively.Figure (3) describe the distribution of the studied subject according to their level of consciousness using Glasgow Coma Scale. It shows that 47.9% of elderly were semiconscious, while 25% of them were conscious, and 27.1% of them were unconscious. Table (2) illustrates thedistribution of the study subjects according to physical assessment of their body systems. It shows that 100% of the subjects had normal skin age related changes, also peripheral pulse was presents in all studied subjects, while 18.75% of them had delayed capillary refill time. Regarding urinary and bowel incontinence it was represented by 72.9%, 54.2% respectively.Table (3) shows thedistribution of the studied subject according to amount of fluids intake.About two third of subjects 62.5% were receive less than 2 litter/day.Figure (4) shows thedistribution of the studied subject according to their laboratory finding(WBC and Hb.). This figure shows that normal white blood cell represented by 75%, while abnormal for hemoglobin level represented by 35.4%.Table (4) illustratesthedistribution of the studied subject according to the risk of pressure ulcer development according to Barden Scale followed up for 5 days. In 1st and 2nd day, 85.4% of subjects were low risk for pressure ulcer development, in 3rd and 4th day 81.25% of subject were low risk for pressure ulcer development. At 5th day, 77% of subjects were low risk for pressure ulcer development. Table (5) shows therelationship between socio-demographics characteristics and total score of Braden Scale in the fifth day. There is no statistical significant different between all items except the present of caregiver. Table (6) shows therelationship between past history of diseases and total score of Braden Scale in the fifth day. There is no statistical significant different between all thepast diseases and total score of Braden Scale in the fifth day.Table (7) shows therelationship between level of consciousness according to Glasgow Coma Scale and total score of Braden Scale in the fifth day. There is statistical significant different betweenelderly level of consciousness and increase the risk fordeveloping pressure ulcer.Table (8) demonstratestherelationship between physical assessment of elderly body systems and total score of Braden Scale in the fifth day.There is statistical significant different betweenurinary and bowel incontnence and total score of Braden Scale in the fifth day.Table (9) shows therelationship between amount fluid intakeand total score of Braden Scale in the fifth day.There is no statistical significant different betweenamount of fluid intake and total score of Braden Scale in the fifth day. Table (10) shows the relationship between selected laboratory finding (WBC, Hb.)and total score of Braden Scale in the fifth day. There is no statistical significant different between lab findings (WBC, Hb) and total score of Braden Scale in the fifth day.

VII. Discussion

Pressure ulcers (PUs) are a common medical complication in the frail elderly. Due to the increase of the elderly population and accrued accompanying comorbidities, there is a higher prevalence of pressure ulcers. These induce suffering and worsening in quality of life and prolong hospitalization. Pressure ulcers are a burden on the medical services and increase their cost substantially. Systemic factors such as aging of the skin, functional impairment, chronic diseases, malnutrition and infection contribute to the appearance of the ulcers and activate development. Low BMI (body mass index), anemia, low protein and albumin are predisposing factors, as well as serious complications of pressure ulcers interfere with the cure[(18)]Older adults with pressure ulcers have a fivefold greater risk of mortality compared with older adults without pressure ulcers. These sores result from constant pressure on a boney prominent area of skin. They can happen anywhere on the body, but they are most common on the skin covering the hips, tailbone, shoulder blades, heels, ankles, and any other bony area of the body[(19)].The present study finding that the mean age of the studied subjects were(73.62 ± 9.08) (Table 1)and near two third of the studied subject were illiterate, The majority had caregiver, this go with the study which done at a public hospital in Brazil, in medical, and surgical department to identify the characterization and risk factors for pressure ulcers in the hospitalized elderly**,** where near to half of the hospitalized immobile elderly patient aged from 60 to 70 year, two thirds of the subject were illiterate[(20)]. Regarding significant of the age toward occurrence of pressure ulcer (Table5) the present study illustrates that no statistical significant relation, which is contradicting with a study applied to identify the prevalence and associated factors of pressure ulcer among hospitalized patients at Felegehiwot Referral Hospital, Ethiopia shows that, the age of the patient is associated with the occurrence of pressure ulcer (P =0.004). As the age of the patient increased, the development of pressure ulcer also increased [(21)].

Caregiver play an important role in providing care to the immobile elderly, this help the researcher to ensure that applicant of olive oil massage was performed according to planned schedule of the study. The present study demonstrates that most of the selected subjects had caregiver(Table 1)and there is a statistical significant relation withtotal score of Braden Scale in the fifth day (Table 5). Finding of the present study according to the past history shows that half of the studied subjects have diabetes mellitus and quarter of them has hypertension (Figure 1).This result was in accordance to study, which conducted in Vincent's Hospital Manhattan at New York City. Results of the study proved that half of the hospitalized elderly patients have past history of diabetes mellitus and hypertension among all cases. Regarding elderly who had past history of cerebrovascular accident, it was reported in more than quarter of the subjects. This result is contradicted with a study to evaluate the risk for pressure ulcers in bedridden elderly mentioned that half of the elderly patient have cerebrovascular accident aged above 69 years[(22)],this is going with the fact that most elderly suffering from more than one chronic disease.In the present study, results show that about one third of the studied subjects were diagnosed on admission with musculoskeletal disorders, quarter diagnosed with neurological disorders while respiratory disorders represented by less than quarter (Figure 2).This is go with several studies [(20, 23, 24)],which mentioned that neurological disorderswere represented by less than quarter of the elderly admission and musculoskeletal disorders represented by nearly half of elderly admission[(20)].In the present study, according to Glasgow coma scale, results show that quarter of the studied subject are unconscious, half of them were semiconscious and quarter of them were conscious (Figure 3). In study applied at University Hospital inJeddah, Saudi Arabia to identify the effectiveness of prevention and management of pressure ulcersamong bed ridden patients shows that near to half of the bedridden patient were unconscious and each of semiconscious and conscious represent by quarter[(25)]. This result is contradicted with the present study that proves a significant statistical relation between Glasgow coma scale and increase risk of pressure ulcer development (Table 7).Finding from the present study, regarding assessment of the body system, shows that all of the studied subjects have normal skin age related changes. Presents of incontinence either urinary or bowel can increase risk of pressure ulcer development. According to the present study, incontinence (urinary and bowel) were presented in more than two third and about half of the subjects respectively (Table 2). This result different from the finding of a study conductedto determine the prevalence of pressure ulcers among the elderly in São Paulo, Brazil[(26)], which mentioned thatmore than one third of the elderly bedridden elderly patients had urinary incontinence and more than quarter had bowel incontinence. Both studies demonstrate that there is a statistical significant relation between incontinence (urinary and bowel) and occurrence of pressure ulcer (Table 8).Adequate hydration of the skin is essential element in skin vitality and prevention of dryness of the skin, elderly need to receive 2.5-3 litters/day to maintain normal body functions, usually they experience decrease thirst [(27)]. In present study about one third of elderly received 2-2.5 litters/day (Table 3) and there is a statistical significant relation betweenamount of fluid intake and total score of Braden Scale in the fifth day (Table 9).The present study shows that more than one third of elderly has normal hemoglobin level (Figure 4), and there is no statistical significant with total score of Braden Scale in the fifth day (P= 0.81) (Table 10). this result is in agreed with a study which performed in three acute care hospitals in the Netherlands, for assessment of the effect of iron supplementation on the prevention of pressure ulcers in aged hip-fracture patients, they found that hemoglobin level has no statistical significant difference (p = 0.803) [(28)].Most of immobile elderly are expected to develop bedsores as a result of age related changes, in the present study (Table 3). Other study was applied to identify the length of time for developing pressure ulcer among hospitalized elderly after post-surgery. The results show that pressure ulcers in subdermal tissues under bony prominences very likely occur between the first hour and 4 to 6 hours after sustained loading [(29)]. Results of the present study show thatmore than three quarters of elderly patient were low risk to develop pressure ulcer. In the 5th day it reaches three quarters i.e. olive oil decrease occurrence of pressure ulcer among three quarters of the studied subjects. This goes with study done in Jordanian long-term caresettings; the study shows a significant risk reduction of pressure ulcer incidence by using topical olive oil for high risk immobilized patients [(30)].

VIII. Conclusion

According to the results of the present study, it concluded that keep about three quarter of elderly at low risk to develop presser ulcer according to total score of Braden Scale in the fifth day.Also, the study shows that there is statically significance different between total score of Braden scale and caregiver, level of consciousness and urinary and bowel incontinence.This prove that there is positive effect of olive oil massage and decrease risk of developing pressure ulcer among immobile hospitalized elderly.

IX. Recommendations

1. Based on the finding of the present study, the following recommendations are suggested:
2. Further studies with larger sample sizes are required to validate our findings regarding frequency of using the olive oil in prevention of bedsores.

3. Using of olive oil should be one of the routine nursing cares for elderly patient to prevent occurrence of bedsores.
4. Health education for the patient and the caregiver regarding effect of olive oil in prevention of bedsores, risk factor for the development of pressure ulcer and the effect of the good nutrition in prevention of bedsores.

5. Table (1): Distribution of the studied subjects according to their socio-demographic characteristics (n=96)

Socio-Demographic	**No**	**%**
Age:		
- **60-64**	**24**	**25.0**
- **65-79**	**50**	**52.1**
- **+80**	**22**	**22.9**
M ± SD	**73.62 ± 9.08**	
Social Status:		
- **Single**	**6**	**6.2**
- **Married**	**42**	**43.8**
- **Divorced**	**4**	**4.2**
- **Widow**	**44**	**45.8**
Level of Education:		
- **Illiterate**	**60**	**62.5**
- **Read & Write**	**12**	**12.5**
- **Primary School**	**10**	**10.4**
- **Intermediate School**	**8**	**8.3**
- **Bachelor**	**6**	**6.3**
Caregiver:		
- **Yes**	**92**	**97.9**
- **No**	**4**	**2.1**

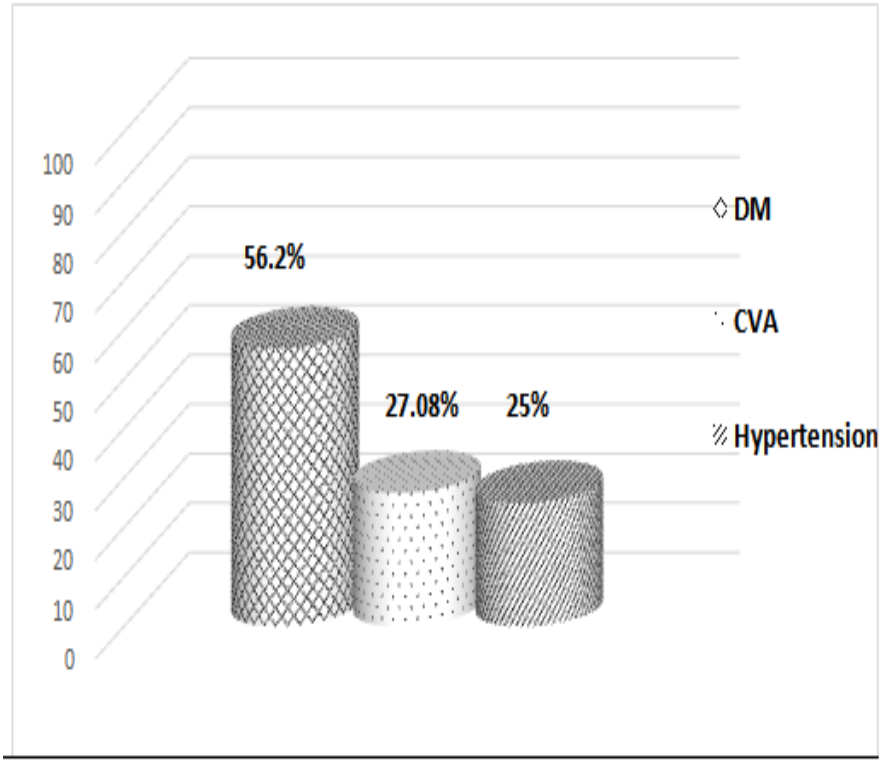

Figure (1): Describes the distribution of the studied subject according to their past history

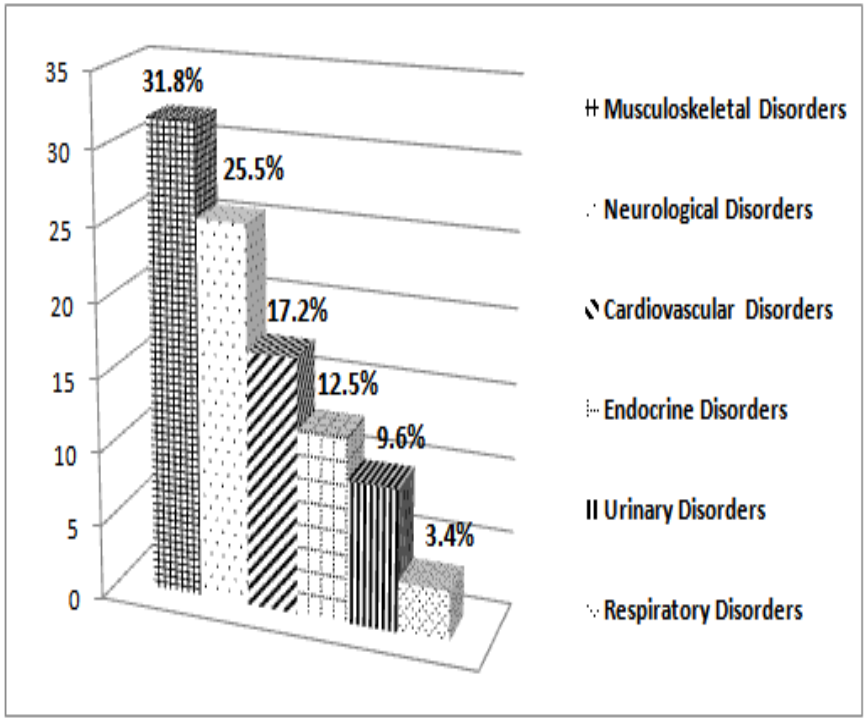

Figure (2): Distribution of the studied subject according to their reason of admission to the hospital

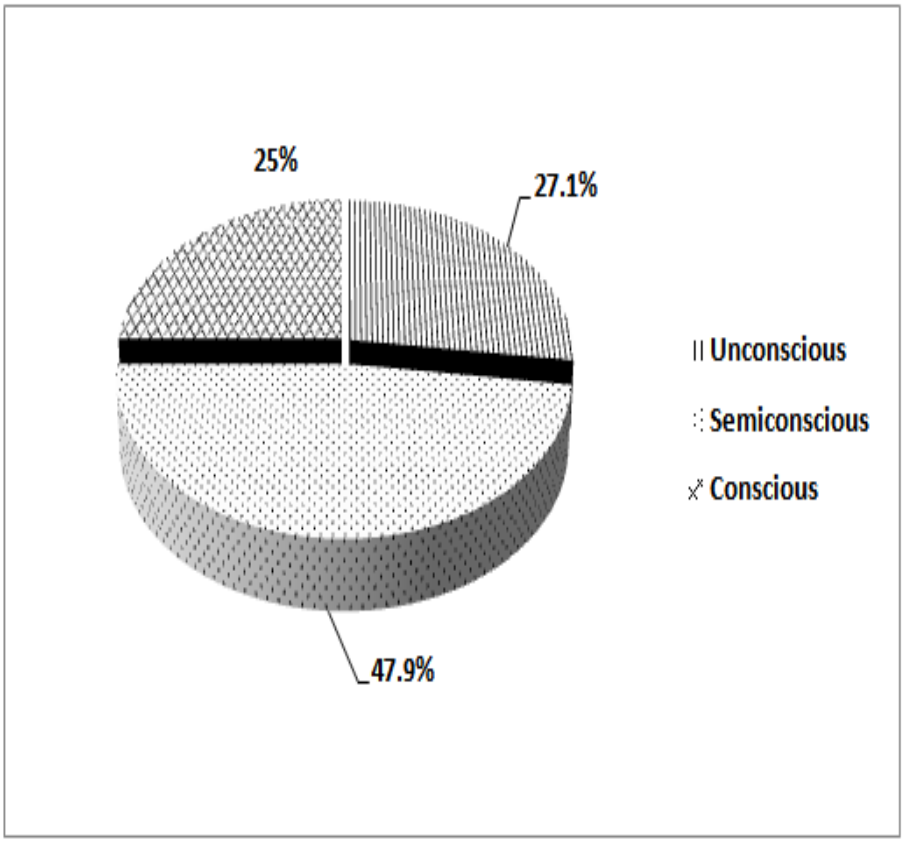

Figure (3): Distribution of the studied subject according to their level of consciousness using Glasgow Coma Scale (n = 96)

Table (2): Distribution of the study subjects according to physical assessment of their body systems(n = 96**)**

Physical Assessment	Present		Absent	
	No.	%	No.	%
Normal skin age related changes	96	100	0	0.0
Cardiovascular System:				
- Peripheral pulse	96	100	0	0.0
- Normal capillary refill	78	81.25	18	18.75
- Delayed capillary refill	18	18.75	78	81.25
Urinary System disorder:				
- Continence	26	27	70	27.9
- Incontinence	70	72.9	26	27
Bowel disorder:				
- Continence	44	45.8	52	54.2
- Incontinence	52	54.2	44	45.8

Table (3): Distribution of the studied subject according to amount of fluids intake(n = 96**)**

Amount of Fluid Intake	No.	%
< 2 Litters/day	60	62.5
2 – 2.5 Litters/day	36	37.5

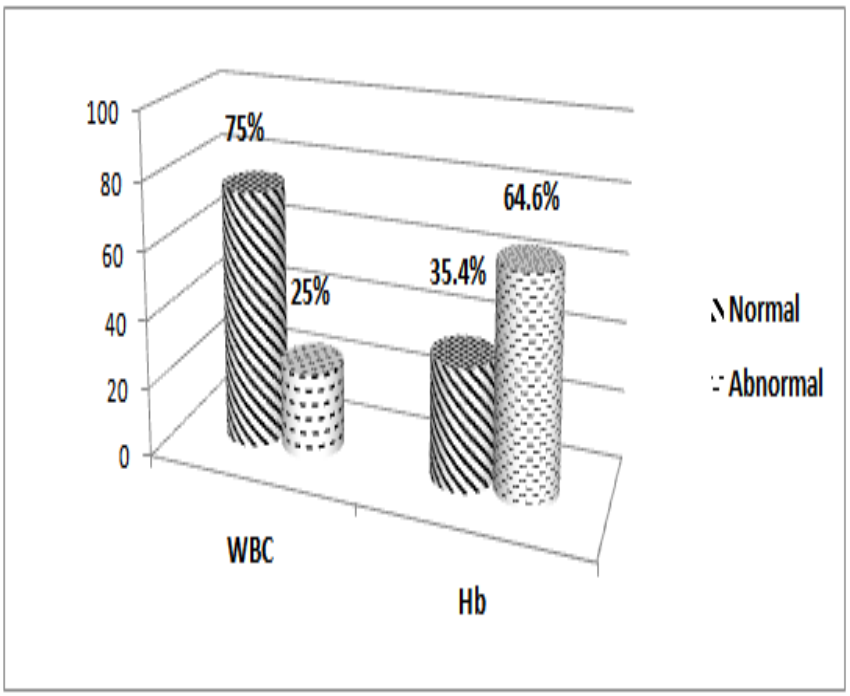

Figure (4): Distribution of the studied subject according to their laboratory finding(WBC and Hb.)(n = 96)

Table (4): Distribution of the studied subject according to the risk of pressure ulcer development according to Barden Scale followed up for 5 days(n = 96).

Level of Pressure Ulcer Development	1st day		2nd day		3rd day		4th day		5th day	
	No.	%	No.	%	N0.	%	No.	%	No.	%
Low Risk	82	85.4	82	85.4	78	81.25	78	81.25	74	77
High Risk	14	14.6	14	14.6	18	18.75	18	18.75	22	23

Table (5): Relationship between socio-demographics characteristics and total score of Braden Scale in the fifth day(n = 96)

Socio-demographics Characteristics	Low risk		High Risk		X^2	P-value
	No	%	No	%		
Age:						
- 60-64	18	18.75	6	6.25	0.976	0.27
- 65-79	36	37.5	14	14.58		
- +80	20	20.8	2	2.9		
Mean ± SD	73.62 ± 9.08		70.46 ± 6.77			
Social Status:						
- Single	6	6.25	0	0.00	0.057	0.83
- Married	30		12	12.5		
- Divorced	4	4.16	0	0.00		
- Widow	34	35.4	10	10.4		
Level of Education:						
- Illiterate	50	52.03	10	10.4	0.546	0.89
- Read & Write	8	8.3	4	4.16		
- Primary School	6	6.25	4	4.16		
- Intermediate School	6	6.25	2	2.92		
- Bachelor	4	4.16	2	2.9		
Caregiver:						
- Yes	70	72.9	22	23	4.320	0.05*
- No	4	4.1	0	0.00		

*Level of significant ≤0.05

Table (6): Relationship between past history of diseases and total score of Braden Scale in the fifth day(n = 96)

Past History of Diseases	Low Risk		High Risk		X^2	P-value
	No.	%	No	%		

D.M	**44**	**45.8**	**10**	**10.4**	**0.969**	**0.49**
Hypertension	**18**	**18.75**	**6**	**6.25**		**0.16**
C.V.A	**20**	**20.8**	**6**	**6.25**		**0.22**
Total	**82**	**85.4**	**22**	**22.9**		**0.87**

*Patients had more than one disease.

Table (7): Relationship between level of consciousness according to Glasgow Coma Scale and total score of Braden Scale in the fifth day(n = **96)**

*Level of significant ≤0.05

Level of Consciousness	**Low Risk**		**High Risk**		**X^2**	**P-value**
	No	**%**	**No**	**%**		
Unconscious	**20**	**20.8**	**6**	**6.25**	**0.022**	***0.001**
Semiconscious	**42**	**43.7**	**4**	**4.16**		
Conscious	**12**	**12.5**	**12**	**12.5**		
Total	**74**	**77**	**22**	**23**		

Table (8): Relationship between physical assessment of their body systems and total score of Braden Scale in the fifth day (n = 96**)**

*Level of significant ≤0.05

Physical Assessment	Low Risk		High Risk		X^2	P-value
	No.	%	No	%		
Normal Skin Age Related Changes	74	77	22	23	0.559	0.46
Cardiovascular System:						
- Peripheral Pulse	74	77	22	23	0.439	0.37
- Normal Capillary Refill	60	62.5	18	18.75	0.858	0.12
- Delayed Capillary Refill	14	14.58	4	4.16		
Urinary System:						
- Continence	10	10.4	16	16.67	8.333	*0.00
- Incontinence	64	66.67	6	6.25		
Total	74	77	22	23		
Bowel Disorder:						
- Continence	22	22.9	22	22.9	6.692	*0.00
- Incontinence	52	54.17	0	0,0		
Total	74	77	22	23		

Table (9): relationship between amount of fluid intakeand total score of Braden Scale in the fifth day(n = 96)

Amount of Fluid Intake	Low Risk		High Risk		X^2	P-value
	No.	%	No	%		
< 2 Litters/day	40	41.67	20	20.8	0.189	0.67
2- 2.5 Litters/day	20	20.8	16	16.67		

*Level of significant ≤0.05

Table (10): Relationship between selected laboratory finding (WBC &Hb.) and total score of Braden Scale in the fifth day(n = 96**)**

Selected Laboratory Finding	Low Risk		High Risk		X^2	P-value
	No.	%	No	%		
WBC	74	77	22	23	1.000	0.81
Hb.	74	77	22	23		

*Level of significant ≤0.05

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