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Prevention of Pressure Sore Development in Orthopaedic Wards of Selected Nigeria Teaching / Specialist Hospitals

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Abstract
Pressure sore is a localized area of tissue damage leading to ulceration of the skin due to the effect of prolonged pressure. The role of the nurses in the prevention of pressure ulcer cannot be over-emphasized because the nurse helps in preventing calamities associated with development of pressure ulcer. The study is aimed at investigating the causes, incidence and method of prevention of pressure ulcer in patients admitted in orthopaedic wards of both specialist hospitals, Sobi and University of Ilorin Teaching Hospital, Ilorin, Kwara State, Nigeria.
The method used was a descriptive study and variables were demographic, perception of the causes of pressure sores and measures of prevention of pressure sore. Simple percentage was used for the analysis of the results. A total of 90 participants (50 nurses & 40 patients) were used for the study with 35 (38.89%) males and 55 (61.11%) females. Among these respondents (patients) 24 (60%) have been on admission for period of 3-4 years, 11 (27.5%) for period of 1-2 years, and 5 (12.5%) between 5-6 years. The findings from the study showed that the nurses' and patients' understanding of the methods of prevention of pressure sore was low. This is because the incidence of pressure sores in the two orthopaedic wards had risen.
Keywords: Mobility, Orthopaedic wards, prolonged Activities of Daily Living, Delcubitus ulcer pressure.

1. Introduction

It is a known fact that Nurses play significant roles in health care delivery system. These roles include promotive, curative, restorative, and rehabilitative. Nurses are known to spend their time round the clock to provide for the clients/patients' identified needs. In meeting the needs of these clients' nurses have dependent, independent and interdependent functions in which prevention/management of pressure sore is an independent function of the nurse in the course of providing his/her service in the health care delivery system.

Pressure sore is a localized area of tissue damage leading to ulceration of the skin due to the effect of prolonged pressure. Continual exposure to pressure for as little as twenty minutes is sufficient enough to bring about pressure sore. Other contributing factors may be intrinsic or extrinsic ones. Intrinsic factors include the individual's age, nutritional state, circulatory status, degree of mobility and dependence; sensory and mental awareness and degree of alertness. Extrinsic factors are causes like pressure, friction, tearing and /or trauma to the skin as well as the presence of prolonged moisture. (Watson**,** 1979).

Pressure sore has significance impact on the health care status of a patient and country's health care system. It is estimated that the treatment of pressure ulcer cost the U.S.A Health Care System about $4.5 billion annually (Belland & passos, 1975). Pressure ulcer is a problem of both acute care and long term setting including homes. This implies that pressure ulcer can develop on short-staying patients.

The role of the nurses in the prevention of pressure ulcer cannot be over-emphasized because the nurse helps in preventing calamities associated with development of pressure ulcer. For the patient, the nurse help preventing pain, reducing the risk of infection and loss of independence in mobility and activities of daily living. Patients come to hospital due to a health problem only to have his/her problem compounded by another health-problem because of his/her long stay in the hospital due to pressure ulcer. This may have several effects on the patient's such as increase demands on nurses, and high expenditures on the patient.

The study aimed at investigating the causes, incidence and method of prevention of pressure ulcer in patients admitted in orthopaedic wards of both specialist hospital, Sobi and University of Ilorin Teaching Hospital, Ilorin Kwara State, Nigeria. It is then hope that this study will help Nurses appreciate the increase financial burden of pressure sores on the patients and their families. It will aid Nurse to provide the patients with comprehensive and quality health care.

Pressures sore or decubitus ulcers are ulcers that develop on the skin of patients who are bedridden, unconscious or immobile. They commonly affect victims of stroke or spinal injuries that result in loss of sensation or constant wet skin caused by incontinence. Bed sore start as red, painful area that turns purple before the skin breaks down, developing in to open wounds/sore.

Once the skin is broken, the sore often become infected, enlarged and deep and very slow to heal. Deep chronic ulcers may require treatment with antibiotic drugs, packaging with plaster foam and possibly plastic surgery (Smith, 1999).

Belland & passos (1999), stated that, the care of decubitus ulcers consumes an astronomical amount of

nurse's time, causes the patient's increased debilitation and tremendous frustrations to the patient's family. It has long been known that preventing decubitis is much easier than healing because when once it begins, it cannot heal quickly.

Once pressure sore develops, there is an additional opening that allows entry of microorganisms and subsequent infections, thereby causing increase discomfort to the patient's. To this end, regular inspection of the patient's skin condition is essential and should be done in every shift by the professional nurse.

Nursing assessment is crucial to the prevention of pressure sores as it is better prevented than cure. Carpemto (2001), described Nursing assessment as the deliberate and systematic collection of data to determine a client's current and past health status to evaluate the client's present and past coping patterns. Nwonu (1992), also, defined nursing assessment as a logical, systematic and orderly collection of data used to evaluate the health status of a client/patient to identify the problem of body, mind and spirit.

The finding from initial and ongoing assessment would assist the nurse in making decision about whether to alter, expand or discontinue the present treatment plan. The data obtained through direct observation of the patient shall guide the nurse in the management of patients especially those susceptible to develop pressure sores so as to prevent it. Nwonu further asserted that nurses should be versatile in caring out their assessment of patients. The assessment should involved history taking, physical examination, laboratory investigation and review of relevant reports and records for, if these are done scientifically, and they will go a long way to prevent decubitus ulcer development.

Belland (1975), Smeltzer and Bare (2004), stated that, Sound health education of the patients and relatives in the prevention of pressure ulcer by the nurse and various exercises by the patient may reduce the likelihood of skin breakdown. Both the patient and the family should be involved in the care of the patient. Family members may sit by the bedside for hours each day when the patient feels helpless and useless. The nurse can help to reduce these feelings by suggesting some thongs they can do to assist in the patient's care.

They should remind the patient to do his/her isometric exercises, at least, every two hours, contracting and relaxing muscles in all body parts is an excellent method to enhance muscles tone and increase circulation. They should encourage the patient to use the overhead bar to exercises his/her arms, to turn from side to side every hour, to reposition the bed, (unless contraindicated) from a sitting to lying position every two hours. This assists in redistributing the body weight, thereby decreasing pressure; encourage the patient to reach with one hand under the mattress or to the side rail and to pull, thereby effecting lifting, rolling motion of the body every two hours and massage the body surface every three hours or more (Taylor & Lemone, 2005).

Patients at risk of pressure ulcer development were identified such as those who are immobile and inactive, very malnourished, and with diminished sensations, advanced age and chronic medical conditions. If conscious effort is made by the nurse, patients and families, pressure sore would be totally eradicated (Dalauna, 2008; Waugh et. al., 2002.

Orem's Self-care model was used for this study. Self- care is important in determining the level that the patient is able to return to his/her highest health level. The self-care theory postulates that self-care of an individual and that of dependents are learned behaviours that individuals initiate and perform on their own to maintain life, health and well-being. The individual's ability to perform self-care is called self-care agency. Adult care for themselves, whereas infants, the aged, the severely ill and disable require assistance with self-care activities (Kozier et. al., 2004) so, an individual who is able to care for self will be able to prevent the development of pressure sores.

2 Materials and methods

Descriptive study design was used to investigate the preventive measures by the nurses on the pressure sore in orthopaedic wards of the in-patients.

2.1 Setting of the study

The study was carried out at the Sobi Specialist Hospital and University of Ilorin Teaching Hospital, Ilorin respectively. The hospitals are tertiary health care facilities in Ilorin metropolis, Kwara State, Nigeria. The hospitals were chosen for the study because of referrals and type of facilities available there such as personnel and equipment.

2.2 Population of the study

All the nurses working in the orthopaedic wards of the two selected hospitals and the patients were respondents in the study.

2.3 Sample and sampling procedure

90 participants were used for the study. This was made up of 32 nurses in the University of Ilorin Teaching Hospital, Orthopaedic wards, 18 nurses of Sobi Specialist Hospital, Ilorin, and 26 patients of University of Ilorin Teaching Hospital, Orthopaedic wards as well as 14 patients of Sobi Specialist Hospital.

The sample was selected among volunteers by both nurses and patients in the orthopaedic wards. The number of participants selected was determined by the population of the nurses and patients in the orthopaedic wards. The

participants were not discriminated against by their gender, occupation, religion, ethnic group, race, colour, educational level or rank, but were allowed to voluntarily agree to participate in the study.

2.4 Ethical consideration

The management of the hospital was written to for official permission to conduct the study. The approval was given to the researcher through the ethical committees of the two hospitals, after a formal meeting with the researcher where the aim of conducting the study was explained to them. With the assistance of the ethical committees, the orthopaedic wards nurses and patients were contacted before the arrival of the researcher which made the conduct of the study easier for both the researcher and the participants. The researcher personally administered the questionnaire to both nurses and patients.

2.5 Validity/reliability of the instrument

Copies of the instrument were given to senior researchers and colleagues for their vetting/critique. This was done promptly and properly, their suggestions were effected before administration. The same questionnaire was pre-tested on the population of the study before final administration was done but the participants used for the pre-test were not used for the final study. The result of the pre-test was discussed with the senior researchers and colleagues that vetted the questionnaire. All, therefore, agreed that final administration be carried out. The data obtained from this study were analyzed with simple percentages, frequencies and tables.

3. Results

This section discusses the data analysis and findings from the questionnaires completed by 90 participants (50 Nurses and 40 patients) from orthopaedic wards of both specialist hospitals, Sobi and University of Ilorin Teaching Hospital, Ilorin, Kwara State, Nigeria

Demographic data of the respondents as shown in Table 1 as the sex (n=90)

Table 3.1: Demographic data of the participants

Variable	*f*	%
Sex distribution		
Male	35	38.89
Female	55	61.11
Total	90	100
Age		
Below 25	Nil	Nil
25 – 34	10	11.11
35 – 44	12	13.33
45 – 54	14	15.56
55 – 64	40	44.44
65 and above	14	15.56
Total	90	100
Religion		
Christianity	44	48.89
Muslim	30	33.33
Traditional	16	17.78
Total	90	100
Occupation		
Civil servant	12	13.33
Farming	2	2.22
Nursing	60	66.67
Trading	6	6.67
Artisan	10	11.11
Total	90	100
Marital status		
Single	8	8.89
Married	67	74.44
Divorced	4	4.44
Separated	6	6.67
Widowed	5	5.56
Total	90	100

Ethnicity		
Fulani	14	15.55
Hausa	8	8.89
Igbo	18	20
Yoruba	44	48.89
Non- Nigerian	6	6.67
Total	90	100
Rank (Nurses only)		
Nursing Officer II(NO II)	Nil	Nil
Nursing Officer I(NO I)	2	4
Senior Nursing Officer (SNO)	10	20
Principal Nursing Officer (PNO)	12	24
Assistant Chief Nursing Officer (ACNO)	8	16
Chief Nursing Officer (CNO)	18	36
Total	50	100
Years of experience in service(Nurse only)	2	4
1 – 5 years	4	8
6 – 10 years	10	20
11 – 15 years	8	16
16 – 20 years	10	20
21 – 25 years	8	16
26 – 30 years	8	16
31 – 35 years	50	100
Total		
Period on admission in the hospital (patients only)		
Below 1 year		
1 – 2 years	Nil	Nil
3 – 4 years	11	27.5
5 – 6 years	24	60
Total	5	12.5
	40	100

NOTE: 50 Nurses, 40 Patients

38.89% were male and 61.11 % were female, the age distribution showed 11.11% were between 25 and 34 years, 13.33% were between 35 and 44 years, while 45 to 54 years had15.56%, 44.44% were between 55 and 64 years and 15.56% were 65 years and above. The distribution of the participant in religions showed that 48.89% were Christians, 33.33% were Muslims and 17.78% belonged to other religions. The participants' occupation indicates that 13.33% were civil servants, 2.22% were farmers, and 66.67% were artisans. Marital status distribution of the participants indicated that 8.89% were single, 74.44% were married, 4.44% were divorced, 6.67% were separated and 5.56% were widowed. By ethnicity, 15.55% were Fulani, 8.89% were Hausas, 20% were Igbos, 48.89% were Yorubas and 6.67% were non-Nigerians. The rank of practicing nurses showed that 4% were Nursing Officers I, 20% were Senior Nursing Officers, 24% were Principal Nursing Officers, 16% were Assistant Chief Nursing Officers, 36% were Chief Nursing Officers respectively. The participants' (Nurses only) years of experiences in the service showed that 4% had between 1 and 5 years, 8% had between 6 and 10 years, 11, 15 years were 20%, 16% between 16 and 20 years, 20% between 21 and 25 years, 16% between 26 and 30 years, and between 31 and 35 years were 16% while the period on admission in the hospital by patients only showed that 27.5% had between 1 and 2 years, 60% between 3 and 4 years and 12.5% had spent between 5 and 6 years on admission.

TABLE 3.2: Percentage of causes of pressure sores

Variable	Yes%	No %	Total
Pressures	85	15	100
Friction	90	10	100
Moisture	90	10	100
Immobility	80	20	100
Inactivity	60	40	100
Poor nutrition	90	10	100
Incontinence	50	50	100
Diminished sensation	60	40	100
Advance age	80	20	100
Chronic medical conditions	75	25	100

Perceived as causes of pressure sore which including pressures, friction , moisture, immobility, inactivity, poor nutrition, incontinence, diminished sensation, advance age, chronic medical conditions and Table 3 shows measures of prevention of pressure sore which include assessment of skin condition ,relieve pressure, avoid any source of friction, change patient's position frequently, avoid patients' lying on a wet surface, clean and dry patient thoroughly, early ambulation, adequate and balance nutrition ,evaluate circulatory status, proper hydration, assess level of mobility, assess any drainage, increase mobility, avoid pressure on bony prominences, maintain clean and dry skin

TABLE 3.3: The measure of prevention of pressure sore

Variable	Yes %	No%	Total
Assess skin condition	100	0	100
Relieve pressure	85	15	100
Avoid any source of friction	80	20	100
Change patient's position frequently	84	16	100
Avoid patients' lying on a wet surface	60	40	100
Clean and dry patient thoroughly	80	20	100
Early ambulation	95	5	100
Adequate and balance nutrition	80	20	100
Evaluate circulatory status	69	31	100
Proper hydration	75	25	100
Assess level of mobility	80	20	100
Assess any drainage	95	5	100
Increase mobility	85	15	100
Avoid pressure on bony prominences	80	20	100
Maintain clean and dry skin	85	15	100

4. Discussion

According to Belland and Passos (1975), one of the most persistent problems from localized areas of ischeamia of the skin is bedsore. Despite the frequency of pressure sore and their costs to the patient and society, it is generally agree that immobilization, pressure on bony prominences, under nutrition, lack of sensory nerve supply are some predisposing factors.

The most successful treatment of bedsores is their prevention. The significance of prevention is emphasized by the fact that curing a decubitus ulcer cannot be easily estimated as the cost will be staggering indeed. But the first step in prevention is the systemic and prompt identification of susceptible patients followed by the institution of preventive measures. Bliss and Mclaren (1967) stated that, 70% of all patients developing decubitus ulcer do so within the first two weeks after admission.

Tailor and Lemone (2005) emphasized the assessing a patient's mobility status includes evaluating the patient's ability to move, turning and repositioning his/her body. A patient that is confined to bed has a limited range of motion and is at the risk of pressure sores. It is recommended that a two- hourly turning of patient with immobility is most appropriate in preventing pressure ulcer (Knox & Colleagues, 1994).

Nutrition is another crucial aspect of prevention of pressure sores. Importance of sound and balanced nutrition in the prevention and treatment of pressure ulcer cannot be emphasized. Essential nutrients are necessary for maximum tissue health, healing potential and immunity to infection. Impaired nutritional status such as poor food intake, weight loss, low triceps, skin fold, low serum albumin, low haemoglobin and low total lymphocyte count can significantly predispose patient to pressure sores (Rallif & Rhodelheraer, 1999).

Smeltzer and Bare (2004) argued that nutritional deficiency, anaemia and metabolic disorder also contribute to pressure sore development. This is because patient who have low protein levels or who are in a

negative nitrogen balance are likely to experience tissue wasting which inhibits tissue repaired. Moisture makes the skin more susceptible to injury. Kozier et al (2004) stated that moisture could be from perspiration, wound drainage, urine or stool. These act as irritants and place the patient at risk of skin breakdown.

Neurological disease such as paralysis, stroke, diabetes mellitus can lead to loss of sensation in a body area. Losses of sensation reduce a person ability to respond to injurious heat and cold and to feel the tingling that signals loss of circulation. This prolonged pressure impedes blood flow and reducing nourishment of skin (Smeltzer & Bare, 2004).

Ageing is a physiological process which brings about several changes in the organs and systems of the body. Permanent among these changes is that which takes place in the skin and its supporting structures, making the sick persons more prone to impaired skin integrity (Waugh et al,2002; McCanne & Haether, 1998).

Turning of patient is essential to the prevention of pressure sore development although, Belland and Passos (1975) emphasized that, regular turning every two hour was not successful or practical with geriatric patients as 50% of these patients developed trunk sores. Some patients were confused and uncooperative and some such as patients with congestive heart failure could not move. Regular turning was successful with patients with cord injuries where patients were positioned in pillows and there was a regular turning team; but a study by Agency for Healthcare Policy and Research Guideline demonstrate that subjects developed redness and skin temperature increase over their sacral area for one or two hours of being immobile. It was concluded in their study that a period of one and half hours between turnings may be more appropriate than the traditional two hours turning period. Agency for Healthcare Policy and Research Guideline, in their study found out that their participants had a significant decrease in skin temperature at the areas that were massaged.

The study findings indicate that understanding of nurses and patient of the method of prevention of pressure sore is was low. Florence Nightingale stated in her book entitled *Note in Hospita*l, published in 1859, "The very first requirement of a hospital that it should do the sick no harm" (Pepper, 2006). Hence, to ensure safety of patient through prevention of pressure development is responsibility of nurses. Training and re-training of nurses on the measure to prevent pressure sore development is considered necessary.

Limitation of the study : Considering the fact that the questionnaires were administered to the respondents in their place of work (nurses) and hospital bed (patients), respondents may have divided attention while completing the questionnaire.

Based on the findings of the study, the researchers hereby make the following recommendations:

- Since prevention of pressure sore is an independent function of nurse, the nurse should be pragmatic in their measures of preventing pressure sores.
- The nurses should be re-trained to perform their professional services better, especially in the prevention of pressure sores.
- Nurses should organized ward seminars on basic nursing management to re-educate themselves.
- Researchers should dissipate their energies on prevention of pressure sores as their result will enhance as better handling of the illness.
- Nurses should be re- trained on how to make comprehensive assessment of their patients to prevent pressure sores developments.
- Adequate record keeping of what has been assessed, is essential so that all those nursing clients susceptible to pressure sore are properly placed in the correct position to understand decibitus patient
- Basic equipment needed for the management of these susceptible patients must be made available to the nurses by the management.

REFERENCES

Belland, T.L. & Passos, J.Y. (1975). *Clinical Nursing Pathophysiological and Psychosocial Approaches.*3rd Ed., New York : Macmillan Publishing Co. Inc.

Bliss, M. R. & Mclaren, R. (1967), "Preventing Pressure Sore in Geriatric Patients". *Nurs. Mirror*, Feb, **10.** 123: 434. .

Dalauna, S.C.& Ladder, P.K. (2008). *Fundamental of Nursing: Standard and Practice,* New York : Delmar Publisher.

Carpemto Moyet, L. J. (2001). *Nursing Diagnosis: Application to Clinical Practice*, 9th Ed. Philadelphia: J.P Lippincott.

Gustavon, B. & Lewis, A. (1987). *Agency for Healthcare Policy and Research Guidelines: Predicting and Prevention of Pressure Ulcer in Adults.*

Knox. T. & Colleagues, C. (1994). *Agency for Healthcare Policy and Research Guidelines: Predicting and Prevention of Pressure Ulcer in Adults*.

Kozier,T.B., Erb,G., Berman,A.& Synder,S. (2004). *Fundation o0f Nursing: Concepts, Process and Practice*. 7th Ed. New Jersey: Pearson Education Inc.

McCanne, K. L. & Huether, S, E. (1975). *Pathophysiology; The Biological Basis for Disease in Adult and*

Children. New York: Macmillan Publishing Co, Inc.

Nwonu,E.I. (1992). *Nursing Process: Concept and Practice in B.M. Dassey, C.E Guzzetta & C.V. Kennar, Critical Care Nursing* 3rd Ed. Philadelphia: J.B. Lippincott.

Nwonu,E.I. *Nursing Process: Concept and Practice*,Enugu : SNAPP Press Ltd.

Rallif, C. R & Rhodelheraer, G. J. (1999). "Pressure Ulcer Assessment and Management". Lippincott's. *Primary Care Practice,* 312:242.

Smeltzer, S. C. & Bare, B. G. Brunner and Suddath's , (2004). *Textbook of Medical Surgical Nursing,* 10th Ed; New York: J. P. Lippincott.

Smith,T. (1999). *"British Medical Association A - Z Family Health Encyclopedia"* , London: Dorling Kingsley.

Taylor, C., Lillis, C & Lemone, P. (2005). *Foundation of Nursing, the Act and Science of Nursing Care,* 5th Ed. Philadelphia: Elsevier Limited.

Watson, J.E, (1979). *Medical-Surgical Nursing and Related Physiology*, 2nd Ed. Philadelphia,New York: W.B. Saunders Company.

Waugh, A. & Grant, A Ross and Wilson's (2002). *Anatomy and Physiology in Health and Illness.* 9th Ed., Philadelpia: Elsevier's Health Science.

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