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Patients and Caregivers' Understanding of Pressure Injury Risk Factors and Their Participation in Care

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Abstract

Background: Recommendations to prevent pressure injuries (PI) consistently emphasize patients' participation in care, without which interventions are less likely to be effective. Aim: To examine patients and/or their caregivers' knowledge of risk factors and participation in PI preventive interventions.

Subjects and Methods: This descriptive study was conducted among 70 patients in neurological and orthopaedic wards in the University College Hospital in Nigeria. The patients were purposively selected. Knowledge about risk factors for PI, level of participation in care and perceived barriers were examined using structured questionnaire.

Findings: Mean age was age 49± 18years; 37(66.1%) did not consider they were at risk for PI. Poor knowledge of risk factors: incontinence (59.3%), dragging self out of bed (56.5%), loss of sensation (58.3), when the nurse drags than lifts (66.7%) was found. Mean knowledge of risk factors was 1.42±0.49 and level of participation (1.31± 0.47). Barriers to participation included inadequate instruction from nurses about what they or their caregivers needed to do (2.41±1.16); pain during repositioning (3.58±1.16); feeling incompetent to turn (3.10±1.27; caregivers not allowed to stay on the ward (3.47±1.12). Only education was significantly associated with level of participation (P= 0.002< 0.05). However, no significant association existed between the medical diagnosis of the patients and their level of participation (P = 0.347 >0.05).

Conclusion: Patients' knowledge of risk factors was poor and participation was also low. Well defined instructions should be provided during hospitalization to improve patient's participation in care.

Keywords: patients' participation, pressure injury prevention, patients' roles in PI prevention, risk factors for PI

1. Introduction

Pressure injury (PI) previously termed pressure ulcer is a significant patient safety and quality healthcare issue and remains one of the major healthcare problems around the world, with major impact on the health care system, patients and their families (Moore*,* Cowman *&* Conroy, 2011; Cilibertia et al. 2014); yet PI is preventable. Recommendations in Clinical Practice Guidelines (CPG) emphasize patients' participation for better outcomes (Black et al., 2011; Mclnnes et al., 2014; National Pressure Ulcer Advisory Panel, European Pressure Ulcer Advisory Panel and Pan Pacific Pressure Injury Alliance,(NPUAP/EPUAP/PPPIA) 2014). In the light of this, there is increased focus on the prevention and early detection of PI in healthcare organizations, with simple interventions such as moving, repositioning, rehydration and skincare (Black et al., 2011; NPUAP/EPUAP/PPPIA 2014). These interventions are easily understood and carried out by patients. It is reported that these interventions though simple, are less likely to be effective if patients are not fully engaged (Schofield, Porter-Armstrong & Stinson (2014); NPUAP/EPUAP/PPPIA 2014). Literature confirms the willingness of patients to participate in certain aspects of their care, only when they have sufficient information through targeted instructions/education (Mclnnes et al., 2014; Tobiano, Bucknall, Marshall, Guinane & Chaboyer, 2016). Yet this area is not adequately explored with regards to PI prevention. In fact, following an extensive review of literature, we found only two studies which were conducted in Australia. These studies explored the perceived roles of patients in preventing pressure injury (Mclnnes et al., 2014; Latimer, Chaboyer & Gillespie, 2014). According to the authors, patients would prefer to play proactive roles. This suggests that the extent to which patients would participate in PI prevention is greatly determined by the information provided to them by nurses, as well as their cognitive and functional status. Similar studies are however lacking currently in Nigeria.

1.1 Purpose of Study

The purpose of this study was to examine patients and/or their caregivers' knowledge of risk factors and participation in PI preventive interventions.

1.2 Literature Review

Patients' participation is a concept which integrates patients into their care and potentially improve clinical outcome (Näsström et al.; 2014). This trend is contrary to the historical paternalistic model of care whereby the patient played a passive role throughout the care trajectory (Souliotis, 2016). In the current healthcare arena, the trend is geared towards promoting partnership with patients; such that they play active roles in decisions regarding their health.

Patients' participation has been entrenched as a measure of quality of care which cannot be assumed (Mclnnes, Chaboyer, Murray, Allen & Jones, 2014; Schoeps et al, 2016). According to some authors patients' participation connotes patients' "involvement", "collaboration" "partnership and 'empowerment" (Kuijpers, Groen, Aaronson & Harten, 2013; Shaghayegh, Leila, Somayeh & Zeinan, 2014). This suggests active involvement of patients in information-sharing, such that they comply with recommendations (Rafii, Soleimani & Seyed-Fatemi, 2010). Other authors like Aujoulat, d'Hoore & Deccache (2007) explained that patients' empowerment reflects the ability of patients to positively influence their health and behaviour, thereby contributing to the overall control of their health and health behaviour. However, effective communication between the care provider and the patients during the care interaction is an essential ingredient. Furthermore, literature explains that when patients and families play active roles in care, such experiences boost their control, facilitate independence and recovery (Shaghayegh et al., 2014). Therefore, effective participation requires targeted efforts to improve patients' access to information and further provide appropriate systems and tools that may help patients in decision making for better clinical outcome. As important as it is for patients and families to participate in providing care during hospitalization, patients' involvement is however not without limitations. For example, Kolovos et al. (2011), opined that involving patients in their safety practices depends on the complexity of the task, as it may also raise a feeling of challenging the healthcare professional's behaviour or adopting an unfamiliar action.

2. Method and Techniques

2.1 Design

A descriptive design was adopted

2.2 Setting

The study was conducted in two selected wards (neurological and orthopaedic wards) in the University College Hospital (UCH), Ibadan Nigeria. This is a 928- bedded hospital with staff capacity of about 1000 nurses and 500 doctors in various specialities and certifications. There are 12 clinical units including neurological and orthopaedics units.

2.3 Sampling Technique

The units (neurosurgery & orthopaedic units) were selected purposively. This is because most patients in these wards experience limited mobility which contributes to PI development.

2.4 Patient Selection

A total sample of adult patients on the wards at the time of study were recruited, using a calculated sample size of 78 patients $[n=N\div 1+N (e^2)]$

The patients were distributed proportionally between the two units based on the total number of patients on each ward as follows 43: Neurology; 33 orthopaedics.

2.5 Instrument

A validated structured questionnaire that was subjected to split-half test of reliability was used. The calculated Cronbach's alpha = 0.75, indicating good internal consistency. Content validity was checked by an expert in the field. The questionnaire was written in English and translated into the local language using back translation. This was done in order to reach out to patients who could not speak or write English. The questionnaire was divided into sections with 10 items on demographic data; 20 items examined patients and their caregivers' knowledge of risk factors for PI and 16 items assessed their knowledge of interventions to prevent PI. The respondents' level of participation was measured using a 4-point Likert scale (*always=3, occasionally=2, very rarely=1, Never=0)* with 14 items. We also examined respondents' perceived barriers to participation in PIP using a 3-point Likert scale *(Agree=3, Undecided=2, Disagree=1)*

2.6 Ethical Considerations

The study was approved by the institutional review board (UI/EC/15/0378). We sought written consent from the participants after detail explanation was provided. Neither the patients nor their caregivers were coerced to participate. Their participation was completely voluntary.

2.7 Data Analysis

Data were cleaned, coded and analysis was done using SPSS version 20.0. Data were presented using descriptive statistics. Chi-square test of association for categorical variables was tested; while Analysis of variance (ANOVA) was used to examine the within and between group differences across the wards and participation. The level of significance was set at 0.05%.

3. Results

3.1 Demographic Characteristics

Of the 78 questionnaires distributed, 70 were suitable for analysis, giving 89.7% response rate. The respondents' mean age was 49±18. They were more males 41 (58.6%) than female 29(41.4%). Of these 47.8% were married, 46.3% were high school graduates being their highest level of education. In relation to the reason for admission, 35 (50%) was due to spinal cord or head injury while 35.7% for orthopaedic injuries and surgeries (Table 1)

Table 1. Demographic distribution of participants

Variable	**Response**	**Frequency**	**Percentage**
Sex	Male	41	58.6
	Female	29	41.4
Age	19- 20	2	3.0
	21-30	14	21.2
	31-40	11	16.7
	41-50	8	12.1
	51-60	8	12.1
	61-70	16	24.2
	> 70	7	10.6
		Mean age=49	**Standard deviation=18**
Specific Ward Admitted	Orthopaedic	35	50.0
	Neurosurgery	35	50.0
Marital Status	Single	21	31.3
	Married	32	47.8
	Widowed	12	17.9
	Separated	1	1.5
	Divorced	1	1.5
Religion	Christianity	47	68.1
	Islam	22	31.9
Ethnicity	Yoruba	57	82.6
	Igbo	5	7.2
	Hausa	1	1.4
	Others	6	8.7

Highest Level of Education	No Formal Education	5	7.5
	Primary	12	17.9
	Secondary	31	46.3
	Tertiary	19	28.4
Occupation	Civil- Servant	17	24.3
	Self Employed	31	44.3
	Retired	13	18.6
	Unemployed	9	12.9
Reason for admission	Orthopaedic injuries & Surgeries	25	35.7
	Other bone diagnoses	10	14.0
	Spinal Cord /Head Injury	35	50.0

3.2 Patients' Awareness of PI and Source of Information

Data show that 54.3% understood the meaning of PI; of which (69.4%) claimed they learned from healthcare providers. However, for 61.7%, the nurses/doctors had not explained the causes or the risk factors to them; therefore 66.1% did not see themselves as being at risk despite their impaired mobility status (Table 2).

Table 2. Patients' /and or caregivers' awareness of PI and source of information about risk factors of PI

Variable	**Response**	**Frequency (%)**	**Mean**	**Standard deviation**
Patients knowledge of meaning of PI	Yes	38(54.3)	1.5224	0.58668
	No	32(47.8)		
Source of information	Health workers	25(69.4)	1.6667	1.21890
	Friends	4(11.1)		
	Internet	4(11.1)		
	Others	3(8.3)		
Whether or not the nurses or doctors have explained the risk factors of PI during this admission	Yes	23(37)	1.6167	0.49030
	No	37(61.7)		
Do patients consider themselves at risk for PI?	Yes	19(33.9)	1.6607	0.47775
	No	37(66.1)		

3.3 Patients' and/or Caregivers' Understanding Their Risk Factors for PI

We examined the respondents' understanding of their risk factors. Specific areas of poor knowledge of risk factors were: incontinence (59.3%), dragging self out of bed (56.5%), loss of sensation (58.3), when the nurse drags than lifts (66.7%) (Table 3).

Each correct response was scored 1, while incorrect response was scored 0; giving a total of 14.0. Scores were categorised into two levels. Scores <7 correct responses were interpreted as low reflecting low knowledge. In all 40 (57.2%) scored below 7 correct responses; $\bar{X}$ =1.42±0.49 (table 3b) . Mean knowledge of risk factors was 1.42±0.49 and level of participation (1.31± 0.47).

Table 3. Patients' and/or caregivers' understanding their risk factors for PI

Response		Yes freq. (%)	No freq. (%)
1.	Not eating adequately	27(43.5)	35 (56.5)
2.	Depression	25(41.0)	36(59.0)
3.	Dragging self to sit out of bed	26(42.6)	35(57.4)
4.	Inability to get out of bed	32 (52.5)	29 (47.5)
5.	Spending most of the day in a wheelchair	24 (40.7)	35 (59.3)
6.	Urine or fecal leakage (incontinence)	25 (41.7)	35(58.3)
7.	Inability to feel sensation or discomfort	23 (37.7)	38 (62.3)
8.	When the body produces excess heat	15 (25.4)	44 (74.6)
9.	Ageing process	19 (32.2)	40 (67.8)
10.	low blood pressure	20 (33.3)	40 (66.7)
11.	When the nurse drags rather than lift me in/out of bed	21.0 (34.4)	40.0 (65.6)
12.	When lying on the bony prominences	25.0(43.9)	32.0 (56.1)
13.	Sitting in chair with prolonged pressure on bony prominences	30.0(49.2)	31.0 (50.8)
14.	Not lying on 4 inch foams or alternating mattress	11.0 (19.0)	47.0 (81.0)
15.	Incorrect use of what should relieve pressure ulcer	29.0 (47.5)	32.0 (52.5)

Table 3b. Cumulative score for knowledge of risk factors

Knowledge	Frequency	Percentage	Mean	SD
Low	40	57.1	1.42	0.49
High	30	42.9		

3.4 Patients' and/or Caregivers' Level of Participation

Findings showed that 65.2% engaged in activities to prevent PI while 34.8% did not participate in it. However, 49.3% of the respondents made efforts to change their position by self-help and 28.3% occasionally observed their skin for colour changes and take high protein (63.2%) and adequate fluids (63.6%). However, 32.7% never changed position every 2 hours by self-help or with relatives support, 38.9% of the respondents never put legs flat on the floor while sitting, 25.2% occasionally use moisturizers on the body, 45.3% never use incontinence pad (Table 4).

Table 4. Patient and/or caregivers' level of participation

Variable/ Response	**Response**			**Frequency (%)**		
Do you participate in pressure ulcer prevention	Yes			30(65.2)		
	No			16(34.8)		
Targeted Participation Activities	**Always**	**Occasionally**	**Very rarely**	**Never**	**Mean**	**Standard deviation**
Eating food high in calories	30(55.6)	5(9.3)	4(7.4)	15(27.8)	2.07	1.3
Eating food high in protein like meat, fish, egg, etc.	36(63.2)	6(10.5)	0(0)	15(26.3)	1.89	1.3
Drinking adequate fluid i.e. water, juices, etc.	35(63.6)	5(9.1)	0(0)	15(27.3)	1.91	1.3
Eating fruits and vegetables that supply vitamins and minerals at least 3 times	32(57.1)	8(14.3)	0(0)	16(28.6)	2.00	1.3

Changing position by self help	25(46.3)	9(16.7)	3(5.6)	17(31.5)	2.22	1.3
Changing position every 2 hours by self-help or with relatives support	27(49.1)	6(10.9)	4(7.3)	18(32.7)	2.23	1.3
Putting legs flat on the floor while sitting	11(19.4)	12(22.2)	10(18.5)	21.38.9)	3.65	5.7
Using moisturisers on the body	18(35.3)	13(25.5)	3(5.9)	17(33.3)	2.37	1.2
Using incontinence pad	14(26.4)	10(18.9)	5(9.4)	24(38.9)	2.74	1.2
Using skin lubricants	20(37.0)	12(22.2)	2(3.7)	20(37.0)	2.4074	1.3
Observing the skin for colour changes	14(26.4)	15(28.3)	4(7.5)	20(37.7)	2.57	1.2
Avoiding too hot or too cold temperatures	14(26.4)	7(13.2)	10(18.9)	22	2.76	0.25
Avoiding soiling my bed linens and even if soiled, I call for attention as soon as possible	15(27.8)	13(24.1)	7(13.0)	19	2.56	1.2
Doing passive exercises	15(28.3)	15(28.3)	5(9.4)	18	2.49	1.2

In categorizing the level of participation, the range of scores were 0-56. Scores ≤ 28 was interpreted as low level of participation, while scores ≥28 was considered high level participation. Results showed that 16 (30.8%) were not consciously engaging in PI prevention among the study cohort (table 4b)

Table 4b. Cumulative score for level of participation

Level of Participation	Frequency	%	$\bar{X}$	SD (±)
High	36	69.2	1.31	0.47
Low	16	30.8		

3.5 Respondents' Perspective About Participation in PI Prevention

We examined respondents' perspective about participating in PI prevention. Findings indicated that 93.8% really wanted to participate, 50.8% were not clear know about their role in PI prevention and 95.3 % believed their family/caregivers can contribute to prevent PI (Table 5).

Table 5. Respondents perspective about participation in PI prevention

Variable	**Response**	**Frequency (%)**
Do patients really want to participate in pressure ulcer	Yes	61(93.8)
	No	4(6.2)
Do you know your role in PIP	Yes	32(49.2)
	No	33(50.8)
Do think your family caregiver can contribute to PI Prevention	Yes	61(95.3)
	No	3(4.7)
Do you think your participation in care would be beneficial	Yes	59(92.2)
	No	2(3.2)
	Indifferent	3(4.7)

3.6 Patients' and/or Caregivers' Perceived Barriers to Participation in PI Prevention

Findings suggested that inadequate information posed a barrier to effective participation in PI prevention (65.5%). This is followed by the belief that only nurses know what to do to prevent its occurrence (60.3%). Respondents (56.7%) also noted that their caregivers were not allowed to stay long enough on the wards to participate in PI prevention (Table 6).

Table 6. Perceived barriers to participation in PIP

Barriers	**A** Freq. (%)	**U** Freq. (%)	**D** Freq. (%)	$\overline{X}$	**SD**
Does not understand the specific roles	21(34.4)	6(9.8)	34 (55.8)	3.3	1.38
Inadequate information/instruction from nurses	41(65.5)	12 (19.2)	10(15.8)	2.41	1.16
Only nurses know what to do	35 (60.3)	13 (31.7)	10 (15.8)	3.45	1.1
Pain experienced during repositioning	37 (62.7)	12 (20.3)	10 (17.0)	3.58	1.16
Not feeling need to change position	34(56.7)	13 (21.7)	13 (31.7)	3.47	1.12
A feeling of incompetence and inadequacy	33 (56.0)	12(20.3)	14 (23.8)	3.10	1.27
Caregivers are not allowed to stay for long on the ward	34 (56.7)	12 (20.0)	13(21.7	3.47	1.12

Key: A-agreed; U=Undecided; D=Disagree.

3.7 Hypotheses

Two (2) hypotheses were generated and tested. H_o1 showed a significant association between level of education of patient and/or caregiver and participation in the prevention of pressure ulcer (X^2 cal =14.79, p< 0.05) (Table 7).

Table 7. Association of level of education and participation in PIP

Highest Level of education	**Patient participation**		**Total**	$\mathbf{X^2}$	
	High	**Low**			**P value**
NO FORMAL EDUCATION	1	1	2	**14.79**	**0.002**
PRIMARY	2	8	10		
SECONDARY	16	4	20		
TERTIARY	16	3	19		
TOTAL	35	16	51		

H_O2 showed a no significant difference between specific units of admission and level of participation in PI prevention (F=2.36; p=0.13> 0.05) {Table 8)

Table 8. Difference between the specific wards of admission and their level of participation

Groups (Orthopaedics and Neurosurgery)	**Sum of squares**	**Df**	**Mean square**	**F-statistic value**	**P value**
Between Groups	0.583	1	0.583	2.36	0.13
Within Groups	12.123	49	0.247		
Total	12.706	50			

4. Discussion

Impaired physical mobility is a major risk factor for PI, thus the need for effective preventive interventions. Clinical guidelines emphasize the importance of patients' participation in simple interventions such as repositioning, skin care and nutrition. However, this participation cannot be assumed but must be active and collaborative with the nurses (N Schoeps et al, 2016). Studies reported patients' willingness to assume an active role in their own care howbeit to some extent; and they value this participation (Kolovos, Kaitelidou, Lemonidou, Sachlas & Sourtzi, 2016; Tobiano et al., 2016). There is therefore a need for changes in the organization of nursing care, communication skills and educational strategies to optimise patients' participation. This avowal is consistent with our findings as 93.8% of the study cohort indicated willingness to participate but lacked information on what their roles would be. Similarly, most respondents (65.5%) judge lack of information as a barrier to participation. It should be noted that; although the study cohort understood the meaning of PI, they confirmed that the care providers did not explain the risk factors to them. It is understood that PI is a patient safety issue in hospitals, thus if patients are sufficiently motivated and empowered through knowledge-sharing, they could monitor their own safety (Tobiano et al., 2016). This, according to the authors raise a need for nursing training on patient-centred approaches to care. From our study 66.1% claimed they were not at risk for PI, despite their impaired mobility status which literature confirms is the most predictor of PI occurrence (Mclnnes et al., 2014). It may be deduced that participation in care may not come easy if patients are not informed of their risk factors.

In regards to level of participation, patients and their caregivers seem to engage in some self-help interventions despite the fact that they were not given definite instructions by nurses. For example, 63.2% always eat foods high in protein to boost their nutritional status and 49.1% engage is 2hourly repositioning by self-help. However, 10.9% occasionally reposition themselves by self-help every 2hours. Gillespie et al. (2014), in a systematic review noted that repositioning is an integral part of PI prevention with sound theoretical and scientific rationale. It is therefore widely recommended in practice, despite the uncertainty in research reports on the most effective frequency and tilt (30^0 or 90^0). Yet, repositioning remains a largely supported intervention in PI prevention.

Our findings support previous findings; that pain and discomfort may deter patients from responding to the natural stimulus of repositioning (Mclnnes et al., 2014). This was also supported by Briggs et al., 2013. In our study, 56.0% reported a feeling of incompetency and inadequacy in PI prevention. This may be related to lack of structured guidance by nurses. There was a significant association between level of education and participation ($p<0.05$); suggesting that the level of education can significantly predict patents' participation in care. It follows that when education is tailored to patient's level of understanding, the outcome can be optimised. On the other hand, there was no difference between specific ward of admission and the level of participation in PI prevention.

5. Conclusion

The findings from this study correctly confirm patients' willingness to be actively involved in their own care; within the limit of their ability and the extent of information available to them. It is however important that nurses/ doctors educate the patients on the risk factors for PI, in order to strengthen and motivate their active engagement thereby reducing PI development. We recommend that the principle of patients' participation in care should be integrated into the hospital policy, as a standard of practice. Furthermore the PI prevention should be tailored to patients' level of understanding to facilitate active participation.

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