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2. The LJN has the tripartite mission of:
  - (a) Promoting a culture of excellence in Nursing Research.
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  - (c) Disseminating information on nursing related development that are not usually easily available to academics and practitioners.
3. The Journal will accordingly encourage the publication of the following categories of papers.
  - (a) Research papers that move away from orthodoxy and which really break new grounds in terms of methodology and findings.
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4. LJN is published biannually in any area of nursing interest or relevant to needs of academics and practitioners.

In this edition, eighteen (18) manuscripts scale through the eye of the needle of the Editor-in Chief. The title of the papers in this edition are: effect of cold compress on the reduction of musculoskeletal pain, swelling and hemarthrosis among orthopaedic patients in Lautech Teaching Hospital, Ogbomoso, Oyo State, Nigeria; Awareness of Prostate Cancer Screening Among Male Civil Servants In Egor Local Government Area, Edo State, Nigeria; Knowledge, Perception And Utilization Of Maternal And Child Health Care Among Women In Ogbomosho, Oyo State, Nigeria; Assessment Of Knowledge And Utilization Of Electronic Medical Records Among Nurses In Secondary Health Care Facilities In Jigawa State, Nigeria; Effect Of Midwife Led Educational Intervention On Knowledge Of Anaemia And Risk Factors Among Pregnant Women Attending Ante-Natal In Selected Primary Health Care Facilities In Osun State, Nigeria; Knowledge Of Health Implications Of Rape And Associated Factors Among Male Undergraduates In Ahmadu Bello University Zaria, Nigeria; Effectiveness Of Family Caregivers Centered Nursing On Knowledge Of Pressure Ulcer Prevention In A Tertiary Health Facility In Kano, Nigeria; Knowledge And Practice Of Malaria Prevention Among Expectant Mothers In Selected Primary Health Centers In Mushin Local Government Area, Lagos State, Nigeria; Prevalence Of Sexual And Psychological Abuse In Almajiri System Of Education In Zaria Local Government Area, Kaduna State, Nigeria; Assessment Of Male Involvement In Maternity Care In Selected Health Facilities In Ado Ekiti, Ekiti State, Nigeria; Educational Intervention On Knowledge Of Prevention And Self-Care Practices Of Selected Lifestyle Diseases Among Civil Servants In State Secretariat Oke-Mosan, Abeokuta Ogun-State, Nigeria; Nursing In An Age Of Change In Nigeria; Knee Replacement Surgery: The Role Of The Nurse In Patient Safety In The Operating Room, The Nigerian Perspective; Choice Of Places Of Delivery Among Women Attending Ante Natal Clinic At Ngwo Health Centre; Systematic Review On Adolescent Girls' Knowledge And Practice Of Menstrual Hygiene In Nigeria; Knowledge And Prevention Of Hypertension Among Patients Attending Medical Outpatient Department Of Garki Hospital, Abuja, Federal Capital Territory, Nigeria And Socio-Cultural Factors Influencing Nutritional Status In Under-Five Children In Akure North Local Government, Ondo State, Nigeria.

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LAUTECH Journal of Nursing focus on but not limited to research findings in the different areas of Nursing: Nursing Care, Nursing Education, Medical Surgical Nursing, Maternal and Child Health Nursing, Community Public Health Nursing, and Psychiatric/Mental Nursing. This journal is published to promote quality scholarly writing and hence instigating and generating vibrant discourse in the different areas of nursing. Apart from providing an outlet for publications of research findings, it offers opportunities for professionals and students to disseminate their views or position on topical issues and emerging theories within the scope of the journal. The Journal is peer reviewed by seasoned scholar. Sixty two authors have contributed in one way or the other to the thirteenth edition of the journal.

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**Patent**

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# EFFECTIVENESS OF FAMILY CAREGIVERS CENTERED NURSING ON KNOWLEDGE OF PRESSURE ULCER PREVENTION IN A TERTIARY HEALTH FACILITY IN KANO, NIGERIA

**IDRIS ABDULRASHID; DALHAT KHALID SANI; ABDURRAHMAN SALIHU KOMBO; HUSAINI MUHAMMAD AIKAWA; & ADAMU DALHATU**

## ABSTRACT

*Pressure Ulcer remains a serious burden to debilitated patients, their families and the managing institutions. The burden of pressure ulcers is one of major cause of increased disease states and death rates despite increased interest and advances currently in the fields of Nursing care, Medicine and Surgery as well as education concerning self-care. This study aimed at exploring the effectiveness of a family caregiver centered nursing protocol on knowledge of pressure ulcer prevention in a tertiary health facility in Kano state. A pre and post quasi-experimental design was employed in which two hundred (200) participants were recruited and allocated into study and control groups. An Interviewer administered questionnaire was used to assess the knowledge of caregivers from both study and control group before and after nursing protocol intervention. Validity and reliability was ensured and data was collected with the help of research assistants. Data was organized, coded and analyzed using statistical package for social sciences (SPSS) version 26. The result of this study indicates that t Pre-intervention results revealed that firstly, there is no significant difference in the socio-demographics of the two groups ( $P=0.99$ ) and secondly, there no significant difference in the knowledge of pressure ulcer between the two groups ( $P=0.636$ ). Also, the Post intervention phase results noted that there is a significant difference in the knowledge score of the study group after intervention ( $p=0.003$ ). but, reveals no significant difference between the knowledge score of the control group before and after intervention. ( $p= 0.260$ ). Lastly, the result showed that there is significant statistical mean difference in the knowledge ( $t= 18.085, p=0.001$ ), of family caregivers in the study group compared to the control which shows the effect of nursing protocol. The study finally concluded that interventions targeted at family caregivers for preventing pressure sore can have significant effect in*

*reducing chances of pressure ulcer development among at risk populations especially at resource constraint settings. The study therefore recommended involvement of family caregivers bedridden patients in the prevention of pressure ulcer after a structured training especially in resource limited settings.*

**Keywords:** Knowledge, Practice, Attitude, Perception, Bedridden, Nursing Protocol

## INTRODUCTION

Pressure ulcer refers to localized damage to the skin and/or underlying tissue that usually occur over a bony prominence due to usually long-term pressure, or when pressure is combined with shear or friction. Pressure ulcer (PU) remained neglected condition in low-and middle-income countries. It is a localized injury to the skin and/or underlying tissue occurring mostly over a bony prominence, as a result of pressure, or pressure in combination with shear (National Pressure Ulcer Advisory Panel, NAUP, 2018).

According to Anil *et al* (2019), prevalence of pressure was as high as (4.94%) in India with anaemia, malnutrition and diabetes as major important risk factors, while morbidity due to pressure ulcers in long stay wards, such as neurology, was exceptionally high (40.9%). This is in contrast to the high incidence of 13.8% that was reported in Canadian setting involving orthopedic adult patients. This was considered serious and called for education intervention involving caregivers of the patients which reduces the incidence to as low as nearly 0% (Lahman & Dahsan, 2011)

The interventional studies on prevention of PUs were primarily reported from high income

countries and mostly used specialized pressure-relieving devices (PRDs) and nutritional supplementation with or without educational interventions (Reddy, Gill, & Rochon, 2006, Langer & Fink 2014, McInnes, *et al*, 2015). Although these interventions were cost-effective compared to treatment of PUs, the cost incurred to prevent each PU was also high in the context of developing countries. Similarly, specialist nurses like clinical staff nurses, wound ostomy/continence nurses, advanced practice nurses and patient care technicians and comprehensive, multidisciplinary wound management teams are not available in developing countries like India. Alternative types of healthcare facilities such as long-term care and home care are also not routinely available, and the family caregivers are the primary caregivers of immobile patients in India (Kumar *et al*; 2016).

Compliance to treatment, continuity of care and social support can be achieved through the involvement of family caregivers and this could lead to optimal treatment and prevention of complications (Glajchen, 2014). For example, in the United States, millions of adults contribute to care of disabled patients freely for long periods and this have saved the country billions of dollars in addition to reduced cost of hospital stay to the patient. Caregivers' support care to patients and the hospital facilities is of immense benefit especially in areas where hospital stays are short, physicians are dissatisfied, and nurses are in short supply. Moreover concluded that intervention designed to encourage patients and their caregivers to assert a more active role in their care can reduce subsequent use of hospital and emergency services as well as reduce the rate of re-hospitalization.

Pressure ulcer (PU) represents a significant burden to the patient, family and healthcare organization. It has a great impact on quality of life physically, psychologically and socially leading to pain, increase a length of hospitalization and rehabilitation. According to Briggs *et al*; PU had been recognized as one of most physically and financial debilitating

complication in the 20th century, that affect all age group in both hospital and community setting (Barker, Kamar Tyndall, *et al* 2013). However, the risk increases in elder individual, immobilized and patient with neurological deficit Qaddumi & Khawaldeh 2014). Despite, availability of all resources needed to prevent PUs, it remained one of the health issues affecting many health care organizations (Barker, Kamar Tyndall, *et al* 2013). PU poses an increasingly serious challenge for global health systems that must be confronted.

Family caregivers are fundamental partners in the delivery of multifaceted health care services. Unlike professional caregivers such as physicians and nurses, informal caregivers usually family members or friends, provide care to individuals with a variety of conditions (Steinberg, 2012). The Involvement of family caregivers is essential for optimal treatment of patients in ensuring treatment compliance, continuity of care and social support. It is necessary to understand that caregivers play an important role in providing care to their patients and they should be aware about the complications and their preventive measures. This will include identifying existing knowledge gap and addressing it which will change the attitude and caregivers perception (Calder, *et al*, 2016).

Involvement of family caregivers in techniques for prevention and control of pressure sores among patients at risks form the basis of this study to determine the effect of a teaching program for caregivers in the prevention and control of pressure sores. This study is motivated by the frequent occurrence of pressure sores among hospitalized bedridden patients especially in all-encompassing resource constraint settings where family caregivers informally contribute to care of patients. It is in line with this motive that a study on effectiveness of a family caregiver centered nursing protocol on knowledge of pressure ulcer prevention in a tertiary healthcare facility in Kano state will be conducted.

## **METHOD**

This study was conducted using a pre and post quasi-experimental design. A two group experiment involving one being experimental while the other being control of equal size was used to collect data as a baseline before an intervention was given to the study group, then the effect of the intervention was measured on the same group after a four (4) weeks and a twelve (12) weeks follow up.

The study was conducted at Murtala Mohammed Specialist hospital in the metropolitan city of Kano State. The population comprised of total enumeration of caregivers in wards with patients that met the criteria of being critically ill and confined to bed. During recruitment of participants, the number of patients at risk across all wards increased to two hundred and therefore all the caregivers were included in the study as participants while ensuring that they met the required criteria for participation in the study. They were finally allocated equally into one hundred (100) participants in the study group and one hundred as control group. And data was collected using and interviewer administered questionnaire before and after intervention from both intervention and control groups. Construct and face validity were ensured by submitting the instrument to 5 jurists who are expert in the field of medical surgical nursing to review and make recommendations. All major observations were harmonized and effected on the tools before use for data collection. A mean item-content validity index (I-CVI) of 0.80 was obtained. A pilot study was conducted among 20 caregivers (10% of the study sample) to test the reliability of the instruments in Muhammad Abdullahi Wase hospital in Nasarawa local government within Kano city which is a setting with similar characteristics to the study setting. The pilot study tested the clarity and applicability of the tool, to estimate the length of time needed to fulfill data collection from each respondent as well as to identify any obstacle or problems in data collection. Internal consistency reliability test was used to

compute Cronbach's alpha value. A reliability coefficient of 0.83 ( $> 0.7000$ ) was obtained.

The data was collected by a letter of introduction from the Department of Nursing Sciences, Ahmadu Bello University Zaria which was used to introduce the researcher at the setting. Ethical approval to conduct the study was received from the ethical review board of Kano State Ministry of Health. The ethical clearance and letter of introduction were used to seek permission to conduct the study at Murtala Mohammed Specialist hospital, Kano. The participants were recruited using a braden scale (Barbara and Nancy, 1987) to identify the patients whose caregivers met the eligibility criteria based on the patient's condition. This was used to assess and screen patients for risk of pressure ulcer development before caregivers' participation in the study. It assessed patients risk base on six items viz: sensory perception, moisture, activity, mobility, nutrition and shear. Eligible participants were grouped into study and control groups of one hundred participants each. The interviewer administered questionnaire (IAQ) was then administered

### **Intervention for the study**

The intervention was done in phases. Each phase of the intervention covers a module which involved the study group as contained in appendix V. During the first phase, an introduction and familiarization was given among the participants and research assistants together with the researcher. The participants asked several questions about the study and all were appropriately answered by the researchers and in some cases by the research assistants.

During the second phase which was the second day, relevant concepts regarding pressure ulcer were discussed with the participants. Pressure ulcer was defined; risk factors and common areas of development were brought out for the understanding of the audience. This took the researcher and the research assistants 3 hours to complete.

During the third phase, several techniques used in the prevention of pressure ulcer were practically demonstrated. Techniques such as frequent turning, massage, techniques used in improving mobility, avoiding soiling and powder application to reduce moisture on the body of the patient were demonstrated. These techniques were also discussed and stressed during the fourth and fifth phase of the intervention.

### **Post intervention Phase**

This phase was undertaken by the researcher in two phases. The immediate phase was within two weeks after intervention while the later phase was after 12 weeks. This involved administration of interviewer administered questionnaire (IAQ) to the study group to retrieve responses for the second time. The observation checklist and the satisfaction scale were also administered.

### **Data Management:**

Security of the collected data was assured by preserving and conserving the data through locking and pass wording so that access to it could only be possible to researcher concerned. Any information required by any study stakeholder will be released promptly and without prejudice. All data was entered in the Statistical Package for Social Sciences (SPSS) version 26. Data was organized, coded and analysed using both descriptive and inferential statistics. Descriptive analysis was carried out using basic frequencies and percentages.

### **Ethical Consideration**

Ethical approval letter with approval number NHREC/17/03//2018 was received from the ethical review board of Kano State Ministry of Health. Study setting was entered starting with Head of nursing services who took the

researcher and research assistants to relevant wards where the purpose of study was introduced. Ethical clearance and introductory letter from school were used to facilitate the process of facility entry. Permission to conduct the study at the selected health facilities were sought from the in charges of the health facilities.

The Right of participants was respected throughout the period of study. Participants were informed on the purpose of the study, their roles, possible benefits, potential risk, period of study, voluntariness of participation, confidentiality of findings and contact of researcher. Each participant was given a consent form to sign/thumb print (where applicable) if she/he agrees to participate in the study.

Data was managed by ensuring that all information of participants was kept strictly under the custody of the principal researcher. All field notes and completed research instruments were retrieved from the research assistants. Data collection research assistants were also given health education and advice to the subjects during the data collection process.

## **RESULT**

Table 1 showed that the mean age of the participants is 28.02 and 28.14 for both the intervention and control groups respectively. Majority belong to Medicine department of the healthcare facility (56% and 55% respectively for both intervention and control groups. It also shows that most of them have attained only basic education. The study shows that there was no significant difference in the socio-demographics of the two groups ( $P=0.99$ ).

**A: Pre-intervention results**

**Table 1: Distribution of caregivers according to their socio-demographic characteristics**

Variable	Category	Intervention group		Control Group		t-value	Sig.
		N	Mean±SD	N	Mean±SD		
Age(years)	15-20	15	28.02	16	28.14±	2-.837	0.099
	21-25	28	±1.10	27	1.10		
	26-30	36		38			
	>30	21		19			
Gender	Male	78.0	78.0	76.0	76.0	3.44	0.087
	Female	22.0	22.0	24.0	24.0		
Ward	Medicine	56.0	56.0	55	55.0	2.443	0.077
	Surgery	44.0	44.0	45	45.0		
Edu Level	Basic	51.0	51.0	48.0	48.0	2.46	0.088
	Higher	49.0	49.0	52.0	52.0		

Table 2 shows that the participants from both study and control groups have an aggregate mean percentage score of 48% and 52% respectively. The table also revealed no

significant difference in the knowledge of pressure ulcer between the two groups pre-intervention (P=0.636)

**Table2: Caregiver’s knowledge of Pressure ulcer from intervention and control groups at Pre-intervention phase (N=200)**

Knowledge items	Study group (n=100)				Control(n=100)				p-value	
	Correct		Incorrect		Correct		Incorrect			
	F	%	F	%	F	%	F	%		
Concepts (3)	56	56.0	44	44.0	66	66	44.0	44.0	0.32	0.636
Risk factors (8)	51	51.0	49	49.0	49.0	49	51.0	51.0		
Common areas(8)	39	39	61	61.0	51	51.0	49	49.0		
Consequences(3)	48	48	52.	52.0	52	52.0	48	48.0		
Prevention (6)	55	55	55	55.0	44	44.0	56	56.0		
Aggregate mean %	48%		52%		52%		48%			

**B: Post intervention phase results**

Table 3 reveals that the mean knowledge for the concept in the study group is 1.51 before intervention, with a p=0.02, knowledge of risk factors 3.23 with a P=0.001. The mean knowledge for common areas is 4.19 with a P=0.003 while the mean knowledge for

consequences before intervention is 1.71 and 1.94 after intervention with P=0.01. Also the table reveals increase in mean knowledge score for prevention from 3 before intervention to 4.88 after intervention for the study group with a p=0.003. This study indicates that there is a significant difference in the knowledge of the study group after intervention (P=0.001).

**Table 3: Comparison of knowledge scores of caregivers study group before and after intervention**

Variable	Before n= 100	After n= 100	T	p-value
Concepts(3)	1.51	2.09	3.786	0.002*
Risk factors(8)	3.23	4.28	3.677	0.001*
Common areas(8)	4.19	5.90	17.228	0.003*
Consequences (3)	1.71	1.94	12.164	0.001*
Prevention (6)	4.11	4.88	11.451	0.003*
Aggregate score (28)	14.75	19.09	18.085	0.001

Mean Score < 14 --- Poor knowledge; 14 --- Average knowledge; > 14 --- Good knowledge

Table 4 compares the mean scores of caregivers control groups at post intervention. The table reveals a mean score of 1.49 before intervention and 1.47 after intervention for knowledge on concepts of pressure ulcer, 3.33 before intervention and 3.28 after intervention for knowledge of risk factors, 4.19 before intervention and 4.10 after intervention for

knowledge of common areas, 1.71 mean score before intervention and 1.72 after intervention for knowledge of consequences and mean scores 4. 11 both before and after intervention for prevention. This study reveals no significant difference between the knowledge score of the control group before and after intervention.(p=0.260)

**Table 4: Comparison of knowledge scores for caregiver’s control group at post - intervention**

Knowledge items	Before n= 100	After n= 100	T	p-value
Concepts(3)	1.49	1.47	0.087	0.675
Risk factors(8)	3.33	3.28	1.432	0.233
Common areas(8)	4.19	4.10	1.228	0.154
Consequences (3)	1.71	1.72	-1.104	0.234
Prevention (6)	4.11	4.11	0.444	0.006
Aggregate score (28)	14.83	14.68	1.085	0.260

**A Pre-intervention results**

Post -  
intervention  
results

## DISCUSSION

This study assesses the effectiveness of a family caregiver centered nursing protocol on knowledge of pressure ulcer prevention in a tertiary healthcare facility in Kano state. This study shows in the demographic characteristics that most of the family caregivers have attained only basic education. This may be true because as global culture, caregivers of patients don't have to achieve high educational status before volunteering to support patients. The writers posited that is a justification of the aforementioned revelation on this study and many others similarly. The groups have near similar demographics. This make the information retrieved from them to have internal consistency to an extent. A good percentage of the caregivers from both study and control groups have attained an educational level. Majority of the patients are within the age category of 26 to 30 years from both study and control groups. This age category is close to that of the patients cared for and this may create understanding on both parties which may contribute to successful care and implementation of the nursing protocol intervention. Majority of the patients are also of male gender which is not surprising because males are usually the most exposed to the danger that may lead to injuries exposing them to immobility and other risks that can contribute to pressure ulcers More than half belong to Medicine department of the healthcare facility (56% and 55% respectively for both intervention and control groups allowing them leave a productive life. Hence the demand to have training on pressure ulcer prevention will be achieved seems achievable as the population is trainable. More than half of the patients are single in both groups while very few are widows which form the minority. A one-third of these patients are in the orthopedics while the remaining one-third is in medical departments of neurology, cardiology and endocrinology. This has exposed the recent increase in debilitating medical conditions that can predispose to pressure ulcers.

### **The Pre-intervention results observed that**

Firstly, there is no significant difference in the socio-demographics of the two groups. The

writers penned that it is expected as a result of the participants being all adults. Almost all literature reviewed revealed same as most caregivers in similar settings are adults as a global experience. Most studies do not include the patient aspects when conducting interventional studies that involve their caregivers. Khalid *et al*; (2020) explained suggest that under no account should direct implementation of intervention on patients be added without involving and studying the demographics of the receiver. Thus this study is in concord with this suggestion and therefore included all these patients to study their demographics in comparison with that of their individual caregivers from their families.

Secondly, there is no significant difference in the knowledge of pressure ulcer between the two groups ( $P=0.636$ ). This study concur with Khaled *et al*; (2015), who identified noted poor knowledge of malnutrition during a pretest but (87.5%) have adequate knowledge during the posttest indicating a great difference. They also noted, that knowledge of exercises was poor initially but significantly improved after intervention protocol aimed at the caregivers where more than (67%) have good knowledge.

### **Post – Intervention result observed that:**

1. There is a significant difference in the knowledge score of the study group before and after intervention. This may be based on the fact that this area is an interesting part for the caregivers as the episodes worry most of them. Findings from Ingwu, Nwaodu, Opara, Israel and Ogbogu (2019) in a quasi-experimental study reveal that caregivers need special training that will enable adequate knowledge to prevent pressure development among patients at risk. The researchers identified certain barriers such as inadequate staffing, heavy workload, as highest perceived barriers to pressure ulcer prevention, and there was a significant relationship between duration of service of caregivers and knowledge of pressure ulcer prevention. Inadequate staffing affects patient caregiver ratio and this tends to decrease patient quality of care and direct effect on quality of life. This study however showed effective knowledge targeted at caregivers has the tendency to improve quality



of outcome of pressure ulcer to the exposed. This study is consistent with Akinferesoye, (2020) who found that caregivers had adequate knowledge after intervention on evidence-based strategies to prevent and treat bedsores. This study also support Khaled *et al*; (2015), who noted a great difference in an Arabian setting during the post-test suggesting a support to the present study. The potential implications for positive social change of providing such training include improvements in the quality of patient care and reduced costs associated with managing pressure ulcers. The writers recommended that caregivers need proper in-service training on and clarification on their roles in predicting, identifying, and preventing pressure ulcers in at-risk patients. Jasdeef *et al*; (2014) conducted a study to investigate whether bystanders' knowledge intervention will reduce incidence of pressure sores in a medical emergency department and the result of the comparative study, it can be concluded that adequate knowledge targeted at family caregivers, bystanders and volunteers will adequately contribute to reduction in the burden of pressure ulcer especially.

Also, this study reveals no significant difference between the knowledge score of the control group before and after intervention.

### **Conclusion and recommendation**

The study concluded that family caregivers cantered nursing intervention can improve the knowledge, practice, perception and attitude of family caregivers and in turn reduce chances of pressure ulcer development on patients and recommended that Nurses and other clinicians should involve family caregivers of patient at risk of developing pressure ulcers in procedures targeted at reducing incidences of pressure ulcers through adequate training.

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