Research Article ISSN 2639-9474

Nursing & Primary Care

Transforming Nursing Care at Patients' Bedside in Low Resource Settings: A Study of Four Hospitals in Southern Nigeria

Mildred E. John, Patience E. Samson-Akpan, and Alberta D. Nsemo

Department of Nursing Science, Faculty of Allied Medical Sciences, College of Medical Sciences, University of Calabar, Calabar, Nigeria.

***Correspondence:**
Mildred E. John, Department of Nursing Science, Faculty of Allied Medical Sciences, College of Medical Sciences, University of Calabar, Calabar, Nigeria, Tel: +234 8037178881.

Received: 19 April 2021; **Accepted:** 25 May 2021

Citation: John ME, Samson-Akpan PE, Nsemo AD. Transforming Nursing Care at Patients' Bedside in Low Resource Settings: A Study of Four Hospitals in Southern Nigeria. Nur Primary Care. 2021; 5(3) 02: 1-6.

ABSTRACT

As the largest group of health care professionals, nurses are in a nodal position to ensure achievement of healthcare goals. Transforming Care at the Bedside (TCAB) is a global initiative whereby nurses implement innovative practices for patient satisfaction. However, the initiative has not been the focus of studies in Nigeria. This study examined TCAB practices among nurses in four hospitals in Southern Nigeria; and determined the effectiveness of capacity building on selected TCAB activities and outcomes. Triangulation (observation, descriptive and quasi-experimental) design was used to collect data from 224 randomly selected nurses working in medical and surgical units of four hospitals in two States of Southern Nigeria. Validated Observation checklist and two validated researcher-developed Questionnaires were utilized to collect data. The Intervention involved capacity building on 21 TCAB activities in four core areas: safe and reliable care; vitality and teamwork; patient-centred care; value-added care processes. The study followed ethical processes. Data were analysed using descriptive and inferential statistics on SPSS 20. After capacity building, nurses' practice of most TCAB activities improved significantly ($p \leq 0.05$), except for work redesign, and improving the work environment. Nurses also spent significantly more time on value-added activities and less time on non-value-added activities after the intervention. Practice of TCAB activities was significantly associated with patient and family satisfaction, nurses' satisfaction, patients' wellbeing, nurse: patient interactions and quality of care ($p < 0.001$). Nurses in the four hospitals implemented many TCAB activities, and this significantly increased nurse: patient interactions, patient wellbeing and satisfaction in the hospitals studied. The TCAB initiative is therefore feasible and relevant in low resource settings like Nigeria.

Keywords

Patient-centred care, Transforming nursing care, Value-added care.

Introduction

Nursing is a nodal profession in every health institution, with the nurse being in a pivotal position to coordinate patient care. As the largest group of health care professionals providing direct patient care in hospitals, nurses have a significant impact on patient safety and the overall patient experience. This requires that the nurse must have adequate knowledge, skills and proficiency in relevant practice areas to perform roles effectively and efficiently to achieve critical care goals. However, the typical work environment of nurses is characterized by some serious threats to patient safety and satisfaction, including staff shortages, high workload, long hours, inefficient work processes, and challenging work environments [1]. A work environment characterized by the above contributes to nursing and patient dissatisfaction, and diminishes the capacity to provide safe and quality care. In a chaotic environment, it is challenging for healthcare professionals to provide safe and improved care for patients, and difficult to attract and retain skilled care providers. A positive practice environment on the other hand adds value to nursing practice, with ultimate patient and staff satisfaction. There is need therefore, to provide and maintain a conducive working environment where nurses and other care providers are able to provide quality patient care, improve patient outcomes, and ensure value-added practice.

Experts [2,3] suggest that the need for the greatest change in care delivery is at the hospital bedside. The IOM 2011 report recommends fundamental transformation in the work environment of nurses, with changes to how the workforce is deployed, and how work processes are designed. It also recommends changes to the leadership, management, and culture of health care organizations. This therefore creates the need for transforming care at the bedside to make the hospital experience safer and more pleasant for patients. It would also free up nurses to spend more time in direct, value-added patient care.

Transforming Care at the Bedside (TCAB) is an initiative for healthcare improvement developed in 2003 by Robert Wood Johnson Foundation (RWJF) in collaboration with the Institute for Healthcare Improvement (IHI) of the United States of America [4]. The IHI/RWJF collaboration/initiative resulted in the creation of a framework for change in patient care built around improvements in four main categories - *Safe and Reliable Care, Vitality and Teamwork, Patient-Centred Care,* and *Value-Added Care Processes*. Originally developed as a national initiative, TCAB has become a global initiative [4] which has been implemented, tested, and refined by many hospitals in many countries. The Initiative emphasises the bottom-up approach to change and quality improvement, whereby frontline nurses originate and implement change, and transform work processes at the point of care [5]. It empowers front-line nurses to implement innovative practices on their units. The goals of TCAB include to improve the quality and safety of patient care (safe and reliable care); increase the vitality and retention of nurses (vitality and teamwork); engage patients and families and improve their experience of care (patient-centred care); improve the effectiveness and efficiency of the entire care team (value-added care); and motivate care providers to take ownership for their roles and perform beyond expectations (transformational leadership) [4,5]. All these ultimately improve patient care, patient outcomes, and the hospital work environment.

Research in developed health systems has reported evidence that TCAB increases direct care; enhances value-added care and nursing innovations; improves quality of care and patient safety by reducing medication errors and hospital-acquired injuries; improves patient satisfaction; increase nurses' job satisfaction; increases retention of nurses; and saves care costs [5,6]; and makes the hospital experience safer and more pleasant for patients; and enables nurses to spend more time in direct patient care [5]. However, despite over a decade of implementing the TCAB Initiative, and its documented success and benefits in USA and other countries, there is no formal implementation in Nigeria. Therefore, inadequate literature exists on activities that transform care at the patient's bedside in this resource-constrained healthcare setting. This serves as the impetus for this study.

The aims of this study were to examine TCAB activities among nurses in hospitals in Southern Nigeria; and to determine the effectiveness of capacity building on knowledge and practice of selected TCAB activities and patient outcomes.

Materials and Methods

Design

The study utilized triangulation (multi-method research) design, with multiple data collection methods leading to different datasets. The methods were observation, descriptive and quasi-experimental, and aimed at cross verification and increased credibility and validity of findings. The quasi-experimental aspect of the study involved one group pre-test/post-test design, to determine the effect of the intervention (capacity building) on knowledge and practice of TCAB activities among participants. The descriptive part enabled nurse participants to identify TCAB activities, evaluated their knowledge of TCAB activities before and after intervention, and determined care outcomes from TCAB activities. Non-participant observation elicited the practice of TCAB activities among participants.

Participants

Participants were two hundred and twenty-four randomly selected nurses working in medical and surgical units of four health institutions (two secondary and two tertiary), in two states (Cross River and Akwa Ibom) of Southern Nigeria; and 52 patients (and/or their relatives) in those wards. Nurse participants constituted 30% of the nurses in the four hospitals. Ethical approval was obtained from the Akwa Ibom State Health Research Ethics Committee, with permission from relevant gatekeepers in the four hospitals, and informed consent from participants.

Intervention

The intervention involved capacity building (2 learning modules) on twenty-one TCAB activities in four core areas of *safe and reliable care; vitality and teamwork; patient-centred care; value-added care processes.* Each learning module took 45 minutes to complete, and groups comprised twelve nurses at a time. Intervention lasted for 4 weeks for all participants in the four hospitals.

Data collection

Data collection involved the use of a self-report questionnaire alongside observation of nurses during caregiving before and after the intervention. The post-intervention data collection took place eight weeks after. Data were collected through a validated researcher-developed, Questionnaire and Observation checklist. The Questionnaire had two versions; one version with 24 items evaluated nurses' TCAB scores before and after intervention (Cronbach coefficient = 0.87). The other version had 18 Likert-type items evaluating care outcomes (Cronbach coefficient = 0.83).

Items for patient outcomes version were adapted from standardized instruments (Patient Satisfaction Questionnaire Short Form (PSQ-18), Patient Wellbeing Questionnaire (W-BQ12), and Healthcare Survey instrument on Quality of Care. The Observation checklist had Cronbach coefficient of 0.91. Data analysis involved descriptive (percentages, means and standard deviation) and inferential statistics (dependent t-test) using SPSS version 20.

Results

Socio-demographic characteristics

Participants were predominantly female (65.6%), with mean age of 28±5.8 years. In terms of professional achievement; 47.3% were registered nurse/registered midwife (RN/RM); 33.0% were in the professional rank of Senior Nursing Officer (SNO) to Principal Nursing Officer (PNO); and 38.4% participants had 6 to 10 years of service as nurses (Table 1).

Table 1: Socio-demographic characteristics of participants (n = 224).

Characteristics	Number	Percentage
Gender		
Female	147	65.6
Male	77	34.4
Age (in years)		
25 to 35	68	30.4
36 to 45	80	35.7
46 to 55	49	21.9
Above 55	27	12.1
Mean age	28 ± 5.8 years	
Professional achievement		
RN only	48	21.4
RN & RM	106	47.3
BSc/BNSc	57	25.4
Others	13	5.8
Professional rank		
Nursing Officer I & II	59	26.3
Senior Nursing Officer to Principal Nursing Officer	91	24.1
Asst. Chief Nursing Officer to Chief Nursing Officer	74	33
Years of service		
Less than 6 years	68	30.4
6 to 10 years	86	38.4
Over 10 years	70	31.3

Transforming Care at the Bedside (TCAB)

Before the intervention, participants identified nineteen activities as vital for transforming patient care at the bedside in the four core areas (Table 2). However, most (87.01%) did not recognize them as part of the global TCAB initiative. TCAB activities identified by more than 40% of participants were, patient-centred care (40.6%), provision of timely care (42.0%), spending more time on direct patient care (43.8%), clear communications (45.1%), and utilizing the nursing process approach in patient care (48.7%). Those identified by less than 20% of participants were, spending more time on value added activities (12.1%), redesigning work space (patient bedside and nurses' work station, 13.4%), mentoring other staff (13.8%), involving staff in key decision making (13.8%), and implementing innovations during patient care (16.5%).

Knowledge and practice scores on all TCAB activities were low before the intervention except for safe and reliable care, and patient-centred care, which had moderate scores. Scores were significantly different between the two secondary and two tertiary hospitals in some indices (safe and reliable care, value-added care and work redesign), with nurses at the two tertiary health institutions having significantly higher scores. After the intervention, knowledge of TCAB activities increased significantly in 13 activities (61.9%), except in eight TCAB activities (three activities under reliable care, three activities under vitality and team work, one activity under patient-centred care, and one under value-added care). Knowledge therefore improved in redesign of activities and care procedures; redesign of the work environment; implementation of evidence-based care; team effort exceeding individual effort; mentoring others; collaborative task sharing; implementation of the nursing process using NANDA-I, NOC & NIC; and spending less time (<30%) on non-value-added activities (Table 3). The practice of TCAB activities also increased significantly ($p \leq 0.05$) on the same activities.

Table 2: TCAB activities identified by participants before intervention (n = 224).

TCAB activities	Number	Percentage
1. Provision of safe and reliable care	86	37.1
2. Mentoring of other staff	31	13.8
3. Patient-centred care	91	40.6
4. Spending more time on value added activities	27	12.1
5. Work redesign	84	37.5
6. Redesigning work spaces (patient bedside & nurses' work station)	30	13.4
7. Effective/efficient use of resources	58	25.9
8. Spending more time on direct patient care	98	43.8
9. Implementing innovations during patient care	37	16.5
10. Collaborative task sharing	45	20.1
11. Taking initiative in making necessary changes	48	21.4
12. Staff support and providing a fulfilling work environment	52	23.2
13. Reducing incidents of adverse events	70	31.3
14. Utilizing the nursing process approach in patient care	109	48.7
15. Provision of timely care	94	42
16. Clear communications	101	45.1
17. Quality patient care	58	25.9
18. Staff engagement/involvement in key decision making	31	13.8
19. Involving patients in care decisions	58	25.9

Observation of nurses during caregiving before and after the intervention revealed significant increase in the number of nurses who were involved with actual practice of TCAB activities in 7 of the 12 (58.3%) activities actually observed at the time of the study. These TCAB activities were, spending over 80% of time on direct patient care per day; allocation of resources based on patient acuity; spending more time on value-adding activities; sharing information with other staff; initiating necessary changes to patient care in independent nursing care areas; engaging patient and relatives in care; and arranging equipment in the utility room and patient's bedside to ensure safety (Table 4).

Scores on the outcomes of care reported by nurse participants (Table 5) improved significantly ($p \leq 0.05$) after the intervention in four areas (patient satisfaction, quality of care, safety and wellbeing of patients, and nurses' satisfaction) However, for the patients/relatives' self-report, only two areas (nurse: patient interaction, and patient safety and wellbeing) improved significantly. Results also showed positive correlation between the practice of TCAB activities and all indices patient/family satisfaction, nurse:

Table 3: Scores on knowledge of activities for transforming care at the bedside before and after capacity building (n = 224).

TCAB practices	Before capacity building		After capacity building		t-value	P
	Mean	SD	Mean	SD		
Safe and reliable Care	**12.2**	**3.3**	22.6	2.9	**3**	**0.002**
• Prevents harm to patients and others (injuries, medication errors, hospital-acquired infections etc.	11.3	2.3	24.1	5.6	5.2	< 0.001
• Provides care in a timely fashion	9.8	1.7	14.5	2.1	3	0.002
• Redesign's activities and care procedures to enhance work quality and productivity	8.6	1.6	10.3	2.3	1.2	NS*
• Redesigns work space and patients' bedside (for safety and aesthetics)	7.2	2.1	11.7	2	1.5	NS*
• Manages resources effectively and efficiently	8.4	1.4	24.6	6.2	5.6	< 0.001
• Reduces incidents of adverse events	9.9	1.7	20.3	2.7	3.5	< 0.001
• Implements evidence-based care	7.2	1.5	9.6	1.8	1.2	NS*
Vitality and teamwork (team-based care)	**9.5**	**1.9**	19.4	2.7	**1.8**	**0.05**
• Team effort exceeds individual effort	7.1	2.2	10.2	1.4	1.3	NS*
• Share's information and ideas with colleagues to improve standard of caregiving	5.6	1.8	15.1	2.2	4.5	< 0.001
• Provides a safe and supportive work environment for self and others	9.2	2.2	19	1.8	3.8	<0.001
• Mentors one another	7	1.3	11.1	1.2	1.3	NS*
• Collaborative task sharing	7.4	1.5	10.1	1.3	1.2	NS*
• Clear communications (inter- and intra-professional)	11.8	2.9	22.9	3.6	5.5	<0.001
Patient-centred care	**11.2**	**2.3**	18.9	2.5	**3.2**	**0.001**
• Implements the nursing process using NANDA, NOC, NIC	4.1	1.9	7.9	1.8	1.3	NS*
• Develops and implements patient-centred interventions	9.7	2	22.1	4.8	5.7	<0.001
• Informs and engages with patients and family	8.9	2.3	20.6	4.2	5.4	< 0.001
• Initiates necessary changes to care	9.1	2.2	16.8	3.5	4.1	<0.001
Value-added Care	**8.3**	**1.7**	19.2	2.5	**1.9**	**0.05**
• Average time spent on direct patient care per day exceeds 80% of time	7.7	1.4	23.7	2.1	4	<0.001
• Spends more time on value-added activities >70%	6.2	1.9	10.8	2.2	3.6	<0.001
• Spends less time on non-value-added activities <30%	4.1	1.5	8.8	1.5	0.9	NS*
• Implements innovations to enhance care quality	7.2	1.3	12.8	1.3	1.7	0.05

* $p > 0.05$

Table 4: Practice of TCAB activities during observation before and after the intervention (n = 224)

TCAB activities	No & % of nurses who practised TCAB before intervention	No. & % of nurses who practised TCAB after intervention	Percent difference
• Spending over 80% of time on direct patient care per day	56 (25.0)	150 (67.0)	42*
• Collaborative team work	45 (20.1)	58 (25.9)	5.8
• Allocation of resources based on patient acuity	47 (21.0)	118 (52.7)	31.7*
• Spending more time on value-adding activities	47 (21.0)	152 (67.9)	46.9*
• Implementing evidence-based activities	5 (2.2)	5 (2.2)	0
• Working in teams	6 (2.7)	25 (11.2)	8.5
• Sharing information with other staff	48 (21.4)	159 (71.0)	49.6*
• Initiating necessary changes to patient care (in independent nursing care areas)	78 (34.8)	184 (82.1)	47.3*
• Engaging patient and relatives in care	98 (43.8)	224 (100)	56.2*
• Implementing the nursing process using NANDA, NOC, NIC	2 (0.9)	12 (5.4)	4.5
• Arranging equipment in the utility room and patient's bedside to ensure safety	21 (9.4)	97 (43.3)	33.9*
• Redesigns the work space for value-added care	6 (2.7)	6 (2.7)	0

* An asterisk indicates that change is statistically different at $p \leq 0.05$.

Table 5: Scores from self-report on care outcomes before and after intervention.

Care outcomes	Nurses' data (n = 224)				Patients/relatives (n = 58)			
	Before intervention		After intervention		Before intervention		After intervention	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Patient/family satisfaction	1.8	0.8	3.9	2.6*	1.5	0.8	3.1	2
Nurse: patient interaction	2	0.9	3	1.9	1.8	0.9	3.6	2.5*
Patient safety and wellbeing	2.1	0.8	3.8	2.5*	1.4	0.9	3.6	2.6*
Quality of care	2.5	1.1	3.6	2.6*	1.6	1	3.2	2.2
Nurses' satisfaction	2.5	1.2	3.5	2.6*	2.3	1.1	-	-

patient interaction, patient wellbeing, quality of care, and nurses' satisfaction (Table 6). Increased nurse: patient interaction related significantly with patient/family satisfaction, patient safety and wellbeing, and nurses' satisfaction.

Table 6: Correlation between TCAB practices and selected care outcomes after intervention (n = 224).

Variables	1	2	3	4	5	6
1. TCAB practices	1					
2. Patient/family satisfaction	.45*	1				
3. Nurse: patient interaction	.53*	.55*	1			
4. Patient safety and wellbeing	.49*	.54*	.57*	1		
5. Quality of care	.52*	.51*	0.42	.61*	1	
6. Nurses' satisfaction	.48*	0.43	.53*	.51*	.48*	1

***p<.001**

Discussion

Nurses in the setting of study identified care activities that fit into the four core areas of TCAB at baseline. However, only five activities were identified by over 40% of participants, (patient-centred care, the provision of timely care, spending more time on direct patient care, clear communications, and utilizing the nursing process approach in patient care). The hospitals used for this study have not formally implemented the TCAB initiative, so those areas were the ones mostly emphasized by clinical nurse leaders. Capacity building on TCAB significantly increased scores on knowledge and practice of TCAB activities. This does not include redesign of activities and the work environment, and implementation of the nursing process using the three standardized nursing languages (NANDA-I, NOC, and NIC).

Nurses' practice of TCAB significantly correlated with self-reported satisfaction of patient/family, nurse: patient interaction, patient's safety and wellbeing, nurses' satisfaction, and quality of care on medical and surgical units. These findings are similar to earlier studies [5, 6, 7, 8] which reported that TCAB increased nurses' job satisfaction by up to 65%, improved patient satisfaction scores by 57%, improved quality of care by 65%, moreover, enhanced safe and reliable care by reducing harmful falls by 59%. Increased nurse: patient interaction related significantly with patient/family satisfaction and patient wellbeing in this study, similar to earlier findings [6].

TCAB targets the nurse spending over 70% of time at the patient's bedside on direct patient care [9], and strengthens the importance of the physical presence of nurses at the bedside. This was also found in the present study, where increased nursing presence ultimately increased nurse: patient interaction. This is basic for professional nursing practice, and brings about positive outcomes such as patient satisfaction, wellbeing and recovery [10]. However, there are several challenges hindering the achievement of this target of the nurse spending over 70% of the time with the patient in resource-constrained settings. These include staff shortages, work overload, and inadequate material resources. Achieving this target therefore requires availability of more nurses on the wards, but this is difficult in the settings used for the study because of finance constraint. Moreover, there was non-utilization of electronic health records in the health institutions in the study; whereas according to experts [9] digitalization of data is important since documenting care takes almost as much time as direct patient care. Therefore, when digitalization processes are under-utilized, achieving TCAB goals is hindered [9].

Findings of non-significant effect of TCAB practice on work redesign and on improved work environment in this study are contrary to earlier findings [11, 12]. This contrary finding may be attributed to the fact that although work redesign is a common activity by nurses in developed health systems, it is not so in Nigeria. Nurses in Nigeria do not generally engage in activities to redesign their activities or work environment. This is usually a policy matter by the administration.

Conclusion

Some TCAB activities were implemented by nurses in the health institutions studied, although they did not identify them as activities of the TCAB initiative. The intervention enhanced nurses' knowledge and practice of TCAB activities, and increased nurse: patient interaction, which in turn enhanced patient and family satisfaction and patient safety and well-being. Knowledge and practice of TCAB activities enhanced nurses' satisfaction and quality of care, which in turn improved patient/family satisfaction, and patient wellbeing. Transforming care at the patient's bedside is therefore possible in low resource settings.

Implications for Nursing

Inefficiencies within the healthcare system can only be adequately addressed by adopting a whole-system approach for strategic change, in order to enhance patient-centred, value-added care. Such strategic systemic changes should include enhancement in the access and dissemination of data and information in the healthcare facility. This is what TCAB is about. Results of this study have implications for nursing education, policy and administration. There is need for nurse leaders in Nigeria and other low resource settings to put in place strategies for implementing the TCAB initiative in health facilities, especially those at the secondary and tertiary levels. There is also the need to build capacity of nurses and develop policy guidelines and protocols for work redesign and improvement of the work environment by nurses. These would go a long way towards adding value to nursing care, improving patient outcomes, and ensuring best practices.

References

1. Institute of Medicine US Committee on the Work Environment for Nurses and Patient Safety. Keeping Patients Safe: Transforming the Work Environment of Nurses. Washington DC. National Academies Press US. 2004.
2. Institute of Medicine. The Future of Nursing Leading Change Advancing Health. Washington DC. National Academies Press US. 2011.
3. Viney M, Batcheller J, Houston S, et al. Transforming Care at the Bedside Designing New Care Systems in an Age of

Complexity. J Nurs Care Qual. 2006; 21: 143-150.

4. Institute for Healthcare Improvement/Robert Wood Johnson Foundation IHI/RWJF. Transforming Care at the Bedside TCAB. 2004.
5. Http://www.aannet.org/edge-runners--transforming-care-at-the-bedside
6. Dearmon V, Roussel L, Buckner EB, et al. Transforming Care at the Bedside TCAB enhancing direct care and value-added care. J Nurs Manag. 2013; 21: 668-678.
7. Lavoie-Tremblay M, O'Connor P, Streppa J, et al. Improving the effectiveness of Human Resources Practices through transforming care at the bedside. Am J H Sci. 2014; 4: 157-168.
8. Lavoie-Tremblay M, O'Connor P, Biron A, et al. The effects of the transforming care at the bedside Program on perceived team effectiveness and patient outcomes. Health Care Manag. 2017; 36: 10-20.
9. Osman AD, Nolan BA. Critical evaluation of transforming care at the bedside application in a multi-model nursing practice A reflective review. J Nurs Educ Pract. 2013; 3: 67-74.
10. Mohammadipour F, Atashzadeh-Shoorideh F, Parvizy S. Concept Development of Nursing Presence Application of Schwartz-Barcott and Kim's Hybrid Model. Asian Nurs Res. 2017; 11: 19-29.
11. Lee B, Shannon D, Rutherford P, et al. Transforming Care at the Bedside Optimizing Communication and Teamwork. Cambridge MA Institute for Healthcare Improvement. 2008.
12. Rutherford P, Phillips J, Coughlan P, et al. Transforming Care at the Bedside Engaging Front-Line Staff in Innovation and Quality Improvement. Cambridge MA Institute for Healthcare Improvement. 2008.