

Effectiveness of the Nursing Process Training on its Knowledge Level among Nurses in Selected County Referral Hospitals in Kenya

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ABSTRACT

Background: Nursing process (NP) is an approach of solving problems systematically that should be utilized by nurses in identification, prevention and treatment of health problems and in promotion of wellness. However, its knowledge among nurses has been reported to be inadequate.

Objective: To evaluate effectiveness of a NP training intervention on its knowledge level among nurses.

Methods: A randomized controlled trial conducted in three phases: pre-intervention, intervention and post-intervention. Multi-stage cluster sampling technique was employed to get a sample of 60 nurses. Two cohorts of nurses were randomly assigned into experimental (n=30) and control group (n=30) and data was collected using questionnaires. Only the nurses in experimental cohort received training on the NP. Descriptive statistics were used to summarize data and t-test used to compare mean differences of the two groups.

Results: In both groups, the participants mean age was 37.2 (± 9.3), majority were females (73.3%), married (73.3%), and had diploma qualification (55.0 %). Before the intervention, the mean NP knowledge of the control group (M=17.1, SD=6.1) was higher than that of the intervention group (M=16.4, SD=4.2), $t(58) = -0.52$, $p=0.61$. However, after the intervention there was a significant increase in the mean NP knowledge of the intervention group (M=69.9, SD=11.4) compared to the control group (M=51.7, SD=11.3), $t(57) = 6.2$, $p < 0.001$.

Conclusion: The NP training intervention had a positive effect on its knowledge level among nurses. Frequent such trainings are recommended to address the existing NP knowledge gaps among nurses.

Keywords: Nurses, Nursing Process, Knowledge level, Training intervention

INTRODUCTION

Knowledge of nursing process is the information that a nurse acquires from the nursing process training. The nurse understands that NP entails steps/phases that are based on patient assessment, nursing diagnosis, coming up with specific objectives and expected outcomes, planning the care, implementing it, and then evaluation (1). This is referred to as a Nursing Care Plan (NCP). The phases of the

NP are fundamental for the nursing activities whereby quality nursing service is offered to patients (2). Nurses should possess knowledge on how NCPs are developed for utilization in the nursing practice of providing health care to patients. There are many challenges facing the practice of NP as studies show, mainly citing the knowledge deficit (3, 4). In Brazil, utilization of NP was associated with higher training level while the non-utilization was

statistically associated with little knowledge on it (5). Similarly, a study in Saudi Arabia revealed a high significant relationship between nurses' total knowledge and their performance regarding Nursing Process utilization (6). In an integrative literature review on NP implementation in developing countries, nurses' inadequate knowledge was the common hindrance to its implementation and utilization (7, 8). Research in Nigeria investigated factors that influenced Nursing Process implementation identified knowledge as having high predictive value. Nurses with high knowledge of Nursing Process appeared to use it more likely than those without (9, 10,11). On the contrary, a study in Ghana, discovered that nurses had adequate knowledge (fair to good) on nursing process (5). Most nurses (60.0%) demonstrated fair knowledge, followed by good knowledge in 36.7% and poor knowledge in just a few (3.3%) (5).

In Tanzania, only 31.4% of nurses in the study knew the nursing process' purpose on nursing care provision (12). Another study in Tanzania revealed that majority of the nurses had inadequate knowledge of the NP (13). A recommendation of training intervention to bridge knowledge gaps was made to upgrade nurses' knowledge towards the NP (13). In Kenya, nurses have embraced nursing process but failure in its implementation is partly associated with presence of inadequate knowledge on it (14, 15). 78.3% of study participant (nurses) in Thika level 5 hospital acknowledged a knowledge deficit in NP that affected its utilization (14). Frequent courses of refreshment were recommended to improve NP knowledge levels of nurses.

Training curriculums for basic nursing cadres in Kenya have incorporated the Nursing Process as the frame work for provision of quality nursing care but unfortunately, Nursing Process is not being adequately utilized in Kenyan hospitals. It was found that nurses who were newly qualified were more familiar with utilization of nursing process when compared with the

older nurses (16). Training of nurses into the profession has been challenged by the incongruence between the way nursing process is being taught and being practiced (17). This gap between nursing process theory and practice has become problematic for student nurses as well as practicing nurses (18, 19). In order to bridge this gap, culture needs to be changed to enable nursing process to be taught in classroom settings as well as in the clinical areas (20).

MATERIALS & METHODS

A randomized controlled trial conducted at Chuka and Embu County referral hospitals in February to September 2023. It adopted multi-stage cluster sampling technique. Sample size was determined using a formula by Chan (2003) for calculating sample size for RCTs with paired samples. It involved 60 Nurses working in medical and surgical inpatient departments; 30 from Chuka County Referral Hospital (CCRH) and 30 from Embu County Referral Hospital (ECRH). The cohorts were randomly assigned into experimental (CCRH) and control cohorts (ECRH). Participation in the study was voluntary. Researcher administered questionnaires were used to collect quantitative data in phase one of the study. No names or persons' identifying numbers appeared on them. Questionnaires had two sections: Nurses' socio-demographic characteristics and Nurses' knowledge on nursing process. Nurses were required to list the steps of the NP, to match the steps with the given descriptions, to give the meaning of letters of acronym NANDA I and to answer twenty multiple choice questions on the nursing process. Other questions included naming their main source of knowledge on the NP and to indicate whether they ever participated in a hospital organized training on the NP. A four weeks training intervention that involved theory and practical sessions was done. The questionnaires that were used in phase one of the study were then re-administered in phase three to collect post-intervention quantitative data.

STATISTICAL ANALYSIS

Data was systematically entered into Excel 2016 and analysis done using SPSS version 27. Analysis in phase one was done using descriptive statistics like mean, percentages and standard deviation. There was no data analysis in phase two during which the training was done. Data in phase three was analysed using descriptive statistics and then t-test used to compare mean differences of the experimental and control cohorts

RESULT

RESULTS AT PRE-INTERVENTION

Social- demographic characteristics of participant

Majority were females (80% in experimental cohort and 67.7% in control cohort). Majority were married, 76.7% in experimental cohort and 70% in control cohort. Age distribution was even in control cohort but in experimental cohort majority were in 31-40 years' age group. Most of them were bedside nurses, 90% and 86.7% in intervention cohort and control cohort respectively. 56.7% and 53.3% in interventional and control cohorts respectively had attained a diploma in nursing. Majority had an experience of less than 10 years, 63.3% and 50% in experimental and control cohorts respectively. There appeared no significant differences in the socio-demographic characteristics of the nurses ($p > 0.05$) between the experimental and control study cohorts at the pre-intervention phase.

Knowledge levels of the Nursing Process among nurses

The participants were asked a set of questions on various aspects of the nursing process to assess their knowledge on the same.

Outlining of the steps of the nursing process among nurses

The participants in each of the study cohorts were asked to list the 7 steps of the nursing process. Rationale step was the least listed with only 13.3% and 16.7 % of respondents in the intervention and control study arms having listed down the step. Implementation was the listed by the greatest number of respondents (96.7% intervention and 83.3% control). In overall majority of the respondents ($> 65\%$ in each study cohort) were aware of patient assessment, nursing diagnosis, implementation and evaluation steps of the nursing process while minority ($< 30\%$ in each cohort) knew about intervention and rationale steps of the nursing process (Table 4.2). There were not significant differences in the knowledge of the steps of the NP between the two study cohorts (p values > 0.05). Furthermore, the mean knowledge scores (out of seven) on the steps of the nursing process for the intervention and control cohorts were 4.40 ± 1.10 and 4.23 ± 2.03 respectively which were not significantly different [$t(58) = 0.395$; $p = 0.694$].

Knowledge of the step of the nursing process among the intervention and control study participants

	Nursing process step	Proportion of correct responses n (%)				
		Intervention (N=30)	Control (N=30)	df	χ^2	p-value
1	Patient assessment	26 (86.7)	23 (76.7)	1	1.002	0.317
2	Nursing Diagnosis	24 (80)	20 (66.7)	1	1.364	0.243
3	Objective/ goals	19 (63.3)	23 (76.7)	1	1.270	0.260
4	Intervention	6 (20)	8 (26.7)	1	0.373	0.542
5	Rationale	4 (13.3)	5 (16.7)	1	0.000	1.000
6	Implementation	29 (96.7)	25 (83.3)	1	1.667	0.195
7	Evaluation	24 (80)	23 (76.7)	1	0.098	0.754
	Score (mean \pm SD)	4.40 \pm 1.10	4.23 \pm 2.03	58	0.395 ^a	0.694 ^b
	Overall mean \pm SD (Min – Max)	4.32 \pm 1.62 (0.0 -7.0)				

a - Independent t-test t-value

b - Independent t-test p-value

Description of the NP steps by nurses

To further assess their understanding of the steps of the nursing process, the respondents were asked to match the various descriptions that were provided to the corresponding correct/matching step in the NP. Majority of the respondents from the intervention (83%) and control (66.7%) correctly matched data collection and the administration of an intervention, (76.6% intervention and 66.7% control). Development of strategies to relieve patients` health problems, planned action and Identification of the patients` response to health problems were the most poorly

matched with less than 10% of respondents in either group giving the correct response. Chi-square analysis did not reveal any significant differences in the responses of the study group ($p > 0.05$) (Table 4.3). Furthermore, the mean scores for the matched question for the intervention (3.0 ± 1.49) and control (2.93 ± 2.02) cohorts were not significantly different [$t(58) = 0.146$; $p = 0.885$].

Proportions of respondents who correctly matched various nursing process steps to their corresponding description at pre-intervention by study group

	Description of the nursing process step	Proportions of correct responses n (%)		Statistic		
		Intervention N= 30	Control N=30	df	χ^2	p-value
1	Data collection	25 (83.3)	20 (66.7)	1	2.222	0.136
2	Development of strategies to relieve patients` health problems	2 (6.7)	1 (3.3)	1	0.351	0.554
3	Determination of the care plan effectiveness	18 (60)	15 (50)	1	0.606	0.436
4	Identification of the patients` response to health problems	3 (10)	7 (23.3)	1	1.920	0.166
5	Administration of an intervention	23 (76.7)	20 (66.7)	1	0.739	0.390
6	Planned action	3 (10)	5 (16.7)	1	0.144	0.706
7	Explanation of an intervention works	7 (23.3)	8 (26.7)	1	0.089	0.766
8	Definition of NANDA	9 (30)	12 (40)	1	0.659	0.417
	Mean score \pm SD	3.0 ± 1.49	2.93 ± 2.02	58	0.146*	0.885
Overall mean+SD (min-max) N=60		$2.97 \pm 1.76 (0 - 6)$				

* t- value for independent t-test

Further understanding of the nursing process

The respondents were tested on a set of 20 multiple option questions to further assess and gauge their understanding of the nursing process. The results of chi-square analysis showed no significant differences in the knowledge, as indicated by the proportions

of correct responses, between the two study groups for all of the 20 questions on which they were tested.

Proportions of respondents who correctly matched various nursing process steps to their corresponding description at baseline by study group

Qtn No.	Proportion of correct responses n (%)		Chi-square analysis		
	Intervention, N=30	Control, N=30	df	χ^2	p-value
1	22 (73.3)	25 (83.3)	1	0.884	0.347
2	12 (40)	17 (56.7)	1	1.669	0.196
3	7 (23.3)	11 (36.7)	1	1.270	0.260
4	14 (46.7)	21 (70)	1	3.360	0.067
5	23 (76.7)	24 (80)	1	0.098	0.754
6	19 (63.3)	16 (53.3)	1	0.617	0.432
7	10 (33.3)	9 (30)	1	0.077	0.781
8	14 (46.7)	18 (60)	1	1.071	0.301
9	13 (43.3)	15 (50)	1	0.268	0.605
10	17 (56.7)	20 (66.7)	1	0.635	0.426
11	18 (60)	24 (80)	1	2.857	0.091
12	17 (56.7)	18 (60)	1	0.069	0.793
13	15 (50)	13 (43.3)	1	0.268	0.605
14	4 (13.3)	6 (20)	1	0.480	0.488
15	20 (66.7)	13 (43.3)	1	3.300	0.069
16	6 (20)	9 (30)	1	0.800	0.371
17	1 (3.3)	2 (6.7)	1	0.351	0.554

18	16 (53.3)	12 (40)	1	1.071	0.301
19	12 (40)	11 (36.7)	1	0.071	0.791
20	9 (30)	13 (43.3)	1	1.148	0.284

Key

Qtn No.	Question
1	The association established for developing, refining and promoting the taxonomy of nursing diagnostic terminology is _____
2	What is observable, measurable patient information called?
3	The four types of nursing diagnosis are _____
4	Which of the following are parts of a nursing diagnosis _____
5	Determination of whether the patient has attained the expected outcome is done in which phase of the nursing process.
6	What is the purpose of the nursing process?
7	-----focuses on reason for admission, previous surgeries, medication currently being taken, and complete physical assessment.
8	-----collects data about changes in an already identified health problem
9	For a nurse to identify a life-threatening problem such as heart attack, _____ is done
10	What is the Information that patient verbalizes called?
11	A step in the nursing process whereby a nurse performs an intervention in order to achieve a certain set goal is called _____
12	An example of objective data is _____
13	Which one of the following nursing diagnoses should be given priority in a patient with deep venous thrombosis _____
14	An independent nursing intervention that should be done by a nurse on a male patient with fracture tibia is _____
15	In order for a client to take part in setting of goals in his care he must- _____
16	A client-centered goal reflects _____
17	A patient complains of sleep disturbance. The intervention that the nurse should initiate first is _____
18	According to Maslow's hierarchy of needs, the patient's need that should receive the highest priority is _____
19	For two closely related nursing diagnosis, which of the following intervention should enable the nurse to get the one that accurately reflect patient's need _____
20	The primary goal of a nurse doing patient assessment on admission is _____

Overall nurses' knowledge levels on the Nursing Process

All the three sets of questions by which the nurses were assessed on their knowledge of the NP were consolidated to compute a single overall score out of 35 (maximum score) for each respondent. The mean knowledge scores were 16.37±4.24 and 17.07±6.06 for the intervention and control cohorts respectively which were not significantly different [t (58) = -0.518; p=0.606] (Table 4.5). Majority of nurses in both groups exhibited between low and moderate knowledge levels. Not more than

6.7% of nurses from each cohort exhibited high levels of knowledge. Further chi-square comparison of the knowledge levels between the two study cohorts showed that the proportion of the categories of knowledge were not significantly different between the two study cohorts [χ^2 (58) = 1.919; p=0.383].

Pre-intervention comparison of the overall knowledge levels of the nursing process between experimental and control study cohorts

Knowledge Variable		Intervention N=30	Control N=30	df	Test statistic	p-value
Mean score ± SD	Out of 35	16.37±4.24	17.07±6.06	58	-0.518 ^a	0.606
Category n (%)	Low	20 (66.7)	15 (50)	2	1.919 ^b	0.383
	Moderate	8 (26.7)	13 (43.3)			
	High	2 (6.7)	2 (6.7)			

- a – t-value
- b – χ -square

Other knowledge related parameters

Majority of the nurses in both the intervention (66.7%) and control (76.7%) study cohorts had received their knowledge of the NP from college training and majority in both intervention (63.3%) and control (80%) study cohorts had never witnessed training on the NP organized at their

respective facilities. There were no significant differences in both the sources of knowledge and the training duration of the nurses between the two cohorts.

Comparison of other knowledge related parameters between the study groups

Variable	Category	Intervention N=30	Control N=30	df	χ^2	p-value
Sources of knowledge of the nursing process	College training Refresher course On-the-job training	20 (66.7) 4 (13.3) 6 (20)	23(76.7) 5 (16.7) 2 (6.7)	2	2.414	0.299
Ever witnessed training on the nursing process organized by the hospital?	yes No	11 (36.7) 19 (63.3)	6 (20) 24 (80)	1	2.052	0.152
Training duration	< 5days ≥ 5days	4 (36.4) 7 (63.6)	3 (50) 3 (50)	1	0.001	0.644

RESULTS AT POST-INTERVENTION

The effects of the Nursing Process training on its knowledge level among nurses

Nurses in both study cohorts were asked to outline the steps of the NP at post-intervention phase. Comparison of the responses by chi-square analysis showed significant differences ($p < 0.05$) in the proportions of respondents between the intervention and control study groups with regard to listing of all other steps in the

nursing process except objective/goal ($p=0.178$) and Evaluation ($p=0.249$). Furthermore, independent t-test showed a significant difference in the mean scores for the listing of the step between the intervention and control groups [$t(57) = 4.438$; $p < 0.001$]

Proportions of respondents who correctly outlined various steps of the nursing process at post-intervention

	Nursing process step	Proportion of correct responses n (%)				
		Intervention N=29	Control N=30	df	χ^2	p-value
1	Patient assessment	27 (93.1)	22 (73.3)	1	4.349	0.037
2	Nursing diagnosis	29 (100)	24 (80)	1	8.773	0.003
3	Objective/goals	26 (89.7)	23 (76.7)	1	1.812	0.178
4	Intervention	19 (65.5)	11 (36.7)	1	4.911	0.027
5	Rationale	22 (75.9)	4 (13.3)	1	23.391	<0.001
6	Implementation	28 (96.6)	23 (76.7)	1	5.536	0.019
7	Evaluation	24 (82.8)	21 (70.0)	1	1.326	0.249
	Mean score ± SD	6.03±0.91	4.27±1.51	57	4.438	<0.001

On the question that tested nurses' ability to match the various steps of the NP to their corresponding correct descriptions, the mean scores computed out of 8 were 6.14 ± 1.06 and 4.20 ± 1.81 for the intervention and control cohorts respectively which were significantly different at $\alpha = 0.05$ [$t(57) = 5.000$; $p < 0.001$] (Table 4.13). There were however no significant differences in correct responses between the two cohorts for three out of the eight

questions i.e., development of strategies to relieve patients' health problems, determination of the care plan effectiveness and identification of the patients' response to health problems.

Proportions of respondents who correctly matched various nursing process steps to their corresponding description at post-intervention by study group

	Nursing process step	Proportion of correct responses n (%)				
		Intervention N=29	Control N=30	df	χ^2	p-value
1	Data collection	29 (100)	25 (83.3)	1	7.211	0.007
2	Development of strategies to relieve patients' health problems	24 (82.8)	21 (70)	1	1.326	0.249
3	Determination of the care plan effectiveness	23 (79.3)	18 (60)	1	2.594	0.107
4	Identification of the patients' response to health problems	9 (31)	4 (13.3)	1	2.690	0.101
5	Administration of an intervention	26 (89.7)	20 (66.7)	1	4.536	0.033
6	Planned action	19 (65.5)	8 (26.7)	1	8.967	0.003
7	Explanation of intervention works	23 (79.3)	14 (46.7)	1	6.720	0.010
8	Definition of NANDA	25 (86.2)	15 (50)	1	8.854	0.003
9	Mean score ± SD	6.14±1.06	4.20±1.81	57	5.000	<0.001

Results of the multiple-choice tests, showed significant differences ($p < 0.05$) in correct responses for in 9 out of the 20 questions in favor of the intervention study cohort. This was as opposed to pre-intervention phase where there had been no significant

differences observed in responses with regard to all the 20 questions.

Proportions of correct responses to multiple choice questions on nursing process at endline by study group

Qtn No.	Proportion of correct responses n (%)				
	Intervention, N=29	Control, N=30	df	χ^2	p-value
1	29 (100)	25 (83.3)	1	7.211	0.007
2	24 (82.8)	18 (60)	1	3.724	0.054
3	10 (34.5)	13 (43.3)	1	0.486	0.485
4	23 (79.3)	16 (53.3)	1	4.441	0.035
5	28 (96.6)	24 (80)	1	4.253	0.039
6	26 (89.7)	20 (66.7)	1	4.536	0.033
7	7 (24.1)	7 (23.3)	1	0.005	0.942
8	22 (75.9)	18 (60)	1	1.699	0.192
9	16 (55.2)	12 (40)	1	1.361	0.243
10	24 (82.8)	20 (66.7)	1	2.014	0.156
11	28 (96.6)	21 (70)	1	8.348	0.004
12	26 (89.7)	23 (76.7)	1	1.812	0.178
13	18 (62.1)	9 (30)	1	6.110	0.013
14	10 (34.5)	2 (6.7)	1	7.042	0.008
15	24 (82.8)	14 (46.7)	1	8.379	0.004
16	11 (37.9)	6 (20)	1	2.311	0.128
17	4 (13.8)	5 (16.7)	1	0.094	0.759
18	24 (82.8)	16 (53.3)	1	5.848	0.016
19	12 (41.4)	6 (20)	1	3.179	0.075
20	17 (58.6)	14 (46.7)	1	0.845	0.358

The total knowledge scores were summed and determined out of a maximum score of 35 for each of the study respondents and mean knowledge scores computed for each of the study groups. The mean overall scores were 24.48 ± 3.98 and 18.10 ± 3.92 for the intervention and control cohorts respectively. T-test comparison showed that intervention cohort had significantly higher mean knowledge than the control cohort [$t(57) = 6.146$; $p < 0.001$]. Furthermore, the knowledge scores were categorized into low (< 15), medium ($\geq 15 - 24.5$) and high (> 24.5) knowledge and chi-square analysis used to compare differences in the frequencies in of the categories between the

intervention and control study group. The results showed significant differences in the frequency distribution of the knowledge categories between the two cohorts [$\chi^2(2) = 28.519$; $p < 0.001$]. More nurses from the intervention cohort (62.2%) fell in the high knowledge category compared to control cohort (0.0%). These results show that the 4-week intervention (nursing process training) significantly improved the knowledge levels of the study nurses with regards to nursing process.

The effects of the nursing process training on its knowledge levels among the nurses

Knowledge Variable		Intervention N=29	Control N=30	df	Test statistic	p-value
Mean score \pm SD	Out of 35	24.48 ± 3.98	18.10 ± 3.92	57	6.146	< 0.001
Category	Low	2 (6.9)	13 (43.3)	2	28.519	< 0.001
	Moderate	9 (31)	17 (56.7)			
	High	18 (62.1)	0 (0.0)			

DISCUSSION

Knowledge levels of the Nursing Process among nurses

This study reveals that majority of the nurses in the study could not outline a

number of the important steps of NP with only few ($< 10\%$) nurses in both cohorts being aware of rationale and interventions steps of NP before the intervention. Overall mean score of 4.32/7 suggest that a number

majority were not acquainted with all the seven steps of NP. The responses on the description of the individual steps of NP indicated that although some nurses could outline one or more steps of NP, a bigger proportion did not know what activities each of these steps comprised suggested by an even lower mean score (2.97+1.76/8). This would imply that their knowledge was inadequate to translate into implementation. Responses to multiple choice questions that tested knowledge on specific aspects of the nursing process also showed poor understanding of certain important aspects of NP such planning and intervention.

The mean overall mean scores for knowledge (out of 35) were below half with majority falling in the low knowledge category in both study cohorts. The pre-intervention knowledge findings portray a below average status of knowledge levels of the nurses on the nursing process in both groups. This does not augur well for the quality nursing services delivered by nurses since NP is considered as the gold standard for nursing care provision worldwide (13). This report is also supported by another study that reported poor NP knowledge among nurses in selected County Referral Hospitals in Kenya with more than two thirds of the nurses exhibiting poor knowledge (22). A Tanzanian study similarly reported inadequate knowledge among over 85% of participating nurses in a referral hospital facility (13). Yet another study conducted in Mathari National Teaching and Referral Hospital reported low rates of knowledge of the nursing process with most of the respondents having not yet understood the relevance and application of the nursing process in patient management and care (23)

Since skills and knowledge are fundamental in organizing and using the NP, it is imperative that programs to enhance the nurses' knowledge on the NP are prioritized as a means to promoting quality standards in nursing care provision. The shortage of knowledge about the NP has been invariably

cited as a major reason for its poor implementation in many settings (24).

Effects of the Nursing Process training on nurses' knowledge of the Nursing Process

Pre-intervention findings on knowledge levels between the intervention and control cohort nurses did not show significant differences while post intervention findings showed that the levels of nursing process knowledge among the intervention cohort was significantly higher than those of the control cohort which suggested that the differences in favour of the intervention group were attributable to the intervention – the 4-week training conducted for the nurses in the intervention cohort. Further, the findings show remarkable improvement in knowledge among the intervention cohort with regard to specific aspects including rationale and intervention where pre-intervention findings had revealed greatest knowledge gaps. On the other hand, however, knowledge levels on certain aspects did not change significantly if at all which would warrant further investigation. These findings are corroborating those of a study conducted to determine the outcome of a nursing intervention on the knowledge and use of nursing process among nurses in Zonal hospitals Rivers State (25). The study reported that the mean score for pre-intervention knowledge on NP was below average for both groups but became high in the experimental group after the intervention, thereby concluding the intervention, which comprised a training package on nursing process, was effective in improving the NP knowledge the among the nurses. Non-significant difference observed between the study cohorts post intervention with regard to specific knowledge areas could have been due to the fact that either the knowledge levels in those areas were already high in both groups at pre-intervention or the intervention period was too short to significantly affect knowledge uptake in that area.

CONCLUSION

This study established that knowledge levels of the nurses on the nursing process is inadequate. It established a significant positive effect of the 4-weeks training intervention on nurses` levels of knowledge on the nursing process. The study recommends strengthening of continuous professional development sessions and in-service education programs on nursing process in order to improve its level of knowledge among nurses.

Declaration by Authors

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