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Nurses' knowledge and use of the nursing process in two major hospitals in Fako, Cameroon

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ABSTRACT

Background & Aim: Although the nursing process can help ensure the quality of nursing care, some nurses do not implement it in patient care. This study assessed nurses' knowledge and use of the nursing process in two major hospitals in Fako.

Methods & Materials: A cross-sectional design with a purposive sample of 101 nurses was used. In addition, 310 randomly selected files of hospitalized patients were examined for the presence and effective use of a nursing care plan. A questionnaire was used to collect data on knowledge and use of the nursing process among nurses, while a checklist was used to audit hospital files for adequate use of the nursing care plan. Data were analyzed using both descriptive and inferential statistics, with the aid of SPSS version 20, with all statistics at Alpha=0.05.

Results: The majority (85.1%) of participants had a mean knowledge score of 8.5/10 (1.06). There was a statistically significant association between nurses' knowledge and gender ($\chi2$=17.998, P=0.003), age group ($\chi2$=49.809, P=0.000), qualification ($\chi2$=65.989, P=0.003) and duration of work experience ($\chi2$=28.158, P=0.021). Most nurses (62.6%) reported using the nursing process only sometimes during patient care. There was a statistically significant association between nurses' age ($\chi2$=9.723, P=0.049), qualification ($\chi2$=34.67, P=0.000), and use of the nursing process. Only 42 files had a complete nursing care plan. Increased workload and nursing shortages were found to hinder the use of the nursing process.

Conclusion: Nurses had good knowledge of the nursing process but did not effectively use it. Thus, the quality of care received by patients in these hospitals is questionable. Strategies to improve the use of the nursing process are needed for effective nursing care.

Introduction

The nursing process, which includes the assessment of patients' condition, formulation of nursing diagnosis, outcomes identification, care planning, implementation, and evaluation of care, is arguably central to all nursing actions (1). The nursing process promotes analytic reasoning among nurses and is applicable in any setting and within any frame of reference (2,3). Effective implementation of the nursing process in patient care enhances nursing efficiency by standardizing nursing practice and facilitates documentation of care, thus providing a unified language for the profession of nursing (4, 5).

Nursing care quality is closely related to a healthcare system's effectiveness, as it promotes clinical patient safety (6-8). In order to achieve the quality of health care service, quality of nursing care is the key element, and to fill this demand application of the nursing process has a significant role (8, 9). Moreover, implementation of the nursing process has some benefits for the nurse, like increased job satisfaction, professional growth, avoidance of legal action, meeting professional nursing

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standards, and meeting standards of accredited hospitals (10). Nevertheless, there is still a gap in nurses' implementation of the nursing process (8). In fact, it has been reported that many nurses, particularly in developing countries, rarely use the nursing process in care provision (4, 11-13). A study carried out in Kenya on the utilization of the nursing process among nurses in Thika Level five hospital found incomplete or missing information on patient assessment and nursing care plans (14). In a study in Kenya, only about 29% of the nurses were able to carry out procedures and documents according to the steps of the nursing process (15).

Several factors have been associated with nurses' poor use and documentation of the nursing process like lack of knowledge, especially for formulation of nursing diagnosis in developing nursing care plans, lack of skill, experience, and interest, as well as the beliefs of nurses on the importance of the nursing process, organizational structure and facilities in both material and human resources (16-19). Lee and Chang found that the use of the nursing process in hospitals was limited based on the assumption that it was time-consuming (20). Even in clinical settings where the nursing process is viewed as desirable, inadequate knowledge and lack of skill to write a nursing care plan have been reported (3, 21). An integrative review of African literature on the use of the nursing process reported that nurses' poor implementation of the nursing inadequate is due to lack of knowledge of the nursing process; stressful working conditions; and low staff levels (22). Mishir et al. found that the lack of preparedness or knowledge about the nursing process or some part of it and the absence of in-service training pertinent to the nursing process mostly influenced the poor implementation of the nursing process (23). Inadequate use of the nursing process results in poor quality care, inability to attain goals, and conflicting roles (24).

In Cameroon, most hospitals do not have any policies on using the nursing process. Some hospitals promote the use of the nursing process by providing forms for nursing care plans in patients' hospital files and in-service training for nurses on the use of the nursing process. All nurses in Cameroon are educated on using the nursing process during pre-registration nurse training. The nursing process is taught as a standalone course or a topic in the fundamentals of nursing course. Anecdotal information from students on clinical placement points to a lack of opportunities to learn how to use the nursing process in practice due to its limited use by practicing nurses. However, the reason for this is not clearly understood.

Moreover, there is barely any published study on nurses' use of the nursing process in Cameroon. Thus, this important area of nursing practice cannot be fully appreciated in Cameroonian. Therefore, this study aimed to examine practicing nurses' knowledge and use of the nursing process in the care of patients in Fako, Cameroon. Understanding how nurses use the nursing process in Cameroon and its associated factors can inform practice policy development and enable clinical supervisors to assist nurses in improving their use and documentation of the nursing process. Moreover, nurse educators could implement educational strategies that enhance knowledge of the nursing process and transfer of skills to the hospital, thus potentially enhancing patient care.

Methods

The study employed a cross-sectional design to investigate nurses' knowledge and use of the nursing process. The study was conducted in the Fako Division, situated in Cameroon's South West Region. Two secondary-level hospitals in this area were involved in the study. These hospitals, however, do not have any policies on the use of the nursing process in patient care. This study's data were collected in June and July 2019. A questionnaire was used to investigate nurses' knowledge and use of the nursing process. A checklist was used to audit in-patient files of patients with any diagnosis to verify the availability and completeness of nursing care plans in patients' hospital files.

A purposive sampling technique was used to select the study sites and participants for the study. The two study hospitals were selected because they are the referral-level hospitals in this region, have a high hospitalization rate, and are expected to demonstrate a high level of nursing care. Nurses were selected if they worked in an in-patient unit of the selected study hospital. The choice for nurses who work in an in-patient unit is because they spend more time with patients, and there is an increased likelihood of them using the nursing process in patient care.

The population of the study consisted of 441 nurses in Fako Division. The target population consisted of 158 nurses who work in the two selected hospitals. The sample size was estimated using the Lorentz formula with a confidence level of 95%, a margin of error of 0.1, and 50% for optimal proportion.

$$N = \frac{z^2 p(1-p)}{d^2} = \frac{(1.96^2)(0.5)(1-0.5)}{0.1^2} = 96$$

By adding 10% to the calculated sample size, an estimated sample size reaches 106 participants.

This study also included 310 randomly selected files of patients with any condition who were hospitalized and under observation. The files were numbers, and a ballot was used to select files to be studied. The nursing care plan section in the files was studied by the researcher (NNE) when she visited the hospitals to assess the documented nursing process.

The instruments used for data collection were a questionnaire and an audit form. The questionnaire was designed based on the research questions and consisted of three sections. Section one constituted the respondents' demographic information; section two constituted ten questions to assess nurses' knowledge of the nursing process. Section three constituted 11 items that assessed the use of the nursing process. The questionnaire items were designed based on the research objectives of the study. The content was informed by literature on the concepts of the nursing process. Participants' understanding of how to state a nursing diagnosis was assessed using a case of malnutrition. There was a logical arrangement of the questionnaire items. Ten questionnaires were piloted in a health center in the study area. These strategies were undertaken to ensure the study instrument's clarity, validity, and reliability. The questionnaire was distributed during the morning shifts and collected on the same day; immediately, the nurses filled them. The audit form contained the various components of the nursing care plan, including objective/subjective data, nursing diagnosis, nursing objectives, nursing interventions, rationale, and evaluation. The research assessed each file to see if there were any recorded information on patients' assessment, nursing diagnosis, outcomes expectations, interventions, and evaluation. These files were assessed for accuracy and completeness of the information and recorded on the audit form. The researcher (NNE) who undertook this process is an advanced practice nurse who has worked for over 10 years in clinical practice and has served as a nursing manager of a medical hospitalization ward.

Ethical consideration

Ethical approval for this study was obtained from the Institutional review board of the Faculty of Health, University of Buea (2019/97605/UB/SG/IRB/FHS).
Administrative approvals were also obtained from the Regional Delegation of Public Health in the South West Region and from the various study hospital administrators. Autonomy and confidentially were ensured. Consent was obtained from every nurse who participated in the study before data collection.

Data were analyzed descriptively by calculating frequencies, percentages, means (μ) of each indicator on a variable, and the standard deviations (σ). Knowledge was measured on a scale of ten: a 0 to 5 score reflected poor knowledge, a 6 to 7 score reflected average knowledge, and an 8 to 10 score reflected good knowledge of the nursing process. This grading system was

generated in line with the ranking used in nursing schools in Cameroon, where students who score 80% and above are considered excellent, and those who score 0-49% are considered failed. Respondents who reported that they 'Sometimes or Never' used the nursing process were considered 'Ineffective Users' of the nursing process. In contrast, respondents who reported that they 'Always' used the nursing process were considered 'Effective Users' of the nursing process. This classification was based on the understanding that the nursing process helps ensure a consistent approach to nursing care. Data for this study were analyzed using SPSS version 20.

Results

A sample of 106 nurses was administered the study questionnaire. However, only 101 respondents returned their questionnaire, giving a response rate of 95%. The majority of respondents (72.3%) were females, and (71.3%) were between the ages of 21 and 30. All the respondents were Christians. Some participants (43.5%) had a Diploma in nursing, and 38.6% had worked for six to ten years (Table 1).

Table 1. Distribution of respondents according to demographic characteristics

Characteristic		N	%
Sex	Male	28	27.7
	Female	73	72.3
Age group	21-30 years	72	71.3
	31-40 years	29	28.7
Qualification	Higher national diploma (HND)	17	16.8
	State registered nurse diploma (SRN)	27	26.7
	Bachelor's degree	35	34.7
	Postgraduate degree	22	21.8
Number of years of experience	1-5 years	25	24.8
	6-10 years	39	38.6
	11-15 years	35	34.7
	16 years and above	02	02.0

Nurses' knowledge of the nursing process

The majority of participants had a good knowledge of the nursing process, demonstrating an understanding of its definition (69.3%), the steps (98%), as well as the activities of the first step (100%), the planning phase (97%) the implementation phase (95%) and the evaluation phase (99%). Only a few (46.5%) could correctly state a nursing diagnosis for a patient with malnutrition (Malnutrition was used as an example to assess nurses' knowledge of the nursing diagnosis) (Table 2).

Table 2. Distribution of nurses according to the knowledge of the nursing process

Questions	Correct response	Wrong response
1. Definition of the nursing process	70 (69.3%)	31 (30.7%)
2. Steps of the nursing process	99 (98.0%)	02 (02.0%)
3. Nursing activities during the first step of the nursing process	101 (100%)	00 (00.0%)
4. Components of initial assessment	70 (69.3%)	31 (30.7%)
5. Meaning of subjective data	97 (96.0%)	04 (04.0%)
6. Parts of a nursing diagnosis	80 (79.2%)	21 (20.8%)
7. Example of a nursing diagnosis for a patient with malnutrition	47 (46.5%)	54(53.5%)
8. Nursing activities during the planning phase of the nursing process	98 (97.0%)	03 (03.0%)
9. Nursing activities during the implementation phase of the nursing process	96 (95.0%)	05 (05.0%)
10. Nursing activities during the evaluation phase of the nursing process	100 (99.0%)	01 (01.0%)

Table 3. Association between demographic information and nurses' knowledge of the nursing process

Demographic information	Categories	Nurses' scores on knowledge of the nursing process						N	Chi-square test
		5.00	6.00	7.00	8.00	9.00	10.00		
Sex	Male	0 (0.0%)	0 (0.0%)	2 (7.1%)	12 (42.9%)	10 (35.7%)	4 (14.3%)	28	$\chi2$=17.998 P=0.003
	Female	3 (4.1%)	3 (4.1%)	7 (9.6%)	8 (11.0%)	48 (65.8%)	4 (5.5%)	73	
Age group	21-30	1 (1.4%)	2 (2.8%)	0 (0.0%)	12 (16.7%)	55 (76.4%)	2 (2.8%)	72	$\chi2$=49.809 P=0.000
	31-40	2 (6.9%)	1 (3.4%)	9 (31.0%)	8 (27.6%)	3 (10.3%)	6 (20.7%)	29	
Qualification	HND	1 (5.9%)	0 (0.0%)	4 (23.5%)	12 (70.6%)	0 (0.0%)	0 (0.0%)	17	$\chi2$=65.989 P=0.003
	SRN	0 (0.0%)	2 (7.4%)	2 (7.4%)	6 (22.2%)	13 (48.1%)	4 (14.8%)	27	
	BSc.	0 (0.0%)	1 (2.9%)	0 (0.0%)	2 (5.7%)	28 (80.0%)	4 (11.4%)	35	
	MSc.	2 (9.1%)	0 (0.0%)	3 (13.6%)	0 (0.0%)	17 (77.3%)	0 (0.0%)	22	
Experience	1-5	1 (4.0%)	0 (0.0%)	0 (0.0%)	10 (40.0%)	14 (56.0%)	0 (0.0%)	25	$\chi2$=28.158 P=0.021
	6-10	0 (0.0%)	3 (7.7%)	3 (7.7%)	8 (20.5%)	23 (59.0%)	2 (5.1%)	39	
	11-15	2 (5.7%)	0 (0.0%)	6 (17.1%)	2 (5.7%)	19 (54.3%)	6 (17.1%)	35	
	16 and above	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (100%)	0 (0.0%)	02	

The mean (S.D) score concerning knowledge was 8.5 (1.06). The lowest score was 5, and the highest score attained was 10. Three nurses (3%) had poor knowledge, 12 (11.9%) had average knowledge, and 86 (85.1%) had good knowledge of the nursing process. The score earned by most nurses (57.4) was 9.

An association of nurses' knowledge of the nursing process and demographic data indicated a strong relationship ($\chi2$=17.998, P=0.003) between gender and nurses' knowledge of the nursing process. Male nurses earned good scores than female nurses. There was equally a strong association ($\chi2$=49.809, P=0.000) between the age group of the nurses and knowledge of the nursing process, as younger nurses had good scores. Moreover, knowledge of the nursing process was strongly associated ($\chi2$=65.989, P=0.003) with the nurses' qualification level, where nurses with higher qualifications performed better in the test. Nurses who had practiced for longer periods were more knowledgeable ($\chi2$=28.158, P=0.021) (Table 3).

Nurses' use of the nursing process in patient care

Most respondents (75.2%) indicated that the hospital always provides nursing process forms in patients' hospital files. However, very few (23.8%) respondents indicated that they always use the nursing process in providing nursing care daily. Generally, most respondents reported that they only sometimes implemented most of the activities of the nursing process, like conducting a detailed nursing assessment (68.3%), preparing nursing care plans for all patients (85.1%), and documenting all their nursing intervention (70.3%) (Table 4).

Table 4. Use of the nursing process based on nurses' responses and file audit

Nurses' responses regarding the use of the nursing process	Always		Sometimes		Never	
	N	%	N	%	N	%
1. We have a nursing process guide in patient's files in the hospital	76	75.2	00	00	25	24.8
2. I use the nursing process in my daily nursing care	24	23.8	72	71.3	05	05.0
3. I conduct a detailed nursing assessment	29	28.7	69	68.3	03	03.0
4. I use NANDA for nursing diagnosis	28	27.7	61	60.4	12	11.9

5. I prepare a nursing care plan for all patients	12	11.9	86	85.1	03	03.0
6. My nursing care plan has goals/expected outcome	25	24.8	64	63.4	12	11.9
7. My care plan has interventions and rationale	18	17.8	77	76.2	06	05.9
8. I evaluate the nursing care plan.	25	24.8	70	69.3	06	05.9
9. My evaluation of the care plan is based on the expected outcome	33	32.7	62	61.4	06	05.9
10. I document all nursing intervention	19	18.8	71	70.3	11	10.9

Audit results for presence and completion of nursing care plans in patients' hospitalization files

Number of files	Contents of nursing care plan	Remark
98	Objective/Subjective data, nursing objectives, and nursing interventions	Incomplete
62	Objective/Subjective data, nursing intervention, and Rationale	Incomplete
42	Objective/ Subjective data, Nursing diagnosis, nursing intervention, Rationale, and Evaluation	Complete
108	None	Empty

Upon an audit of in-patient files, out of 310 files, only 42 (13.5%) of the files had complete nursing care plans with all five parts present. One hundred and sixty (51.6%) files had incomplete care plans, while 108 (34.8%) files had no nursing care plans (Table 4). Cross-matching practice of the nursing process and demographic data, a weak association ($\chi2$=9.723, P=0.049) was found between nurses' age and use of the nursing process. There was a strong association ($\chi2$=34.67, P=0.000) between nurses' qualification and their use of the nursing process, where those with lower qualifications practiced activities of the nursing process always (Table 5).

Table 5. Association between demographic information and nurses' use of the nursing process

Demographic information	Categories	Rate of the practice of activities of the nursing process			N	$\chi2$ test
		Never	Sometimes	Always		
Sex	Male	42 (15.0%)	136 (48.6%)	102 (36.4%)	280	$\chi2$=86.04 P=0.133
	Female	47 (6.4%)	496 (67.9%)	187 (25.6%)	730	
Age	21-30	26 (3.6%)	469 (65.1%)	225 (31.2%)	720	$\chi2$=9.723 P=0.049
	31-40	63 (21.7%)	163 (56.2%)	64 (22.1%)	290	
Qualification	HND	27 (15.9%)	75 (44.1%)	68 (40.0%)	170	$\chi2$=34.672 P=0.000
	SRN	54 (20.0%)	109 (40.4%)	107 (39.6%)	270	
	BSc.	06 (1.7%)	258 (73.7%)	86 (24.6%)	350	
	MSc.	02 (0.9%)	190 (86.4%)	28 (12.7%)	220	
Experience	1-5	12 (04.8%)	83 (33.2%)	155 (62.0%)	250	$\chi2$=33.766 P=0.056
	6-10	28 (07.2%)	305 (78.2%)	57 (14.6%)	390	
	11-15	49 (14.0%)	238 (68.0%)	63 (18.0%)	350	
	16 years and above	0 (0.0%)	06 (30.0%)	14 (70.0%)	20	

Factors impeding the use of the nursing process by nurses

The unavailability of the nursing process forms (28.4%), workload (40.3%), shortage of staff (27.8%), and lack of proper training on the use of the nursing process (03.5%) were some of the factors reported by nurses as what prevented their proper use the nursing process in patient care.

Discussion

This study's findings suggest that most nurses had good knowledge of the nursing process, but their utilization of this tool in patient care was poor. Researchers in other African contexts reported similar results (12, 14, 22, 25). Although the level of knowledge of the nursing process among nurses in this study is commendable, there is a need to

explore strategies to enhance the utilization of the nursing process in the study hospitals and potentially other hospitals in Cameroon. This is highly relevant because the nursing process is vital to nursing care quality improvement (5, 8, 9, 22).

This study's good level of knowledge is attributable to good quality training at pre-registration and/or in-service levels. Nevertheless, it is expected for every practicing nurse to master the nursing process and implement it in patient care. Thus, nurse educators need to use active and experiential educational strategies that facilitate nursing process skill acquisition and transfer of learning to practice. These include, but are not limited to, strategies such as simulations, role play, and lecture demonstrations (26).

In this study, gender, age, qualification, and duration of experience were significantly associated with nurses' knowledge of the nursing process. Nurses with higher qualifications and longer duration of clinical practice were found to be more knowledgeable. This improved knowledge is expected as advanced nursing education and experience have the potential to improve competencies (27). Based on these findings, there is a need for the development of continuing professional development courses on the use of the nursing process in patient care for nurses in the study setting.

The nursing process implementation by nurses in this study was generally poor, as reflected in the poor documentation in patients' hospital files. However, this stirs controversy, as a good level of knowledge is expected to translate to good practice (28, 29). This finding substantiates the need for educational strategies that encourage transfer or learning to practice (26). Adequate use of the nursing process ensures that patients receive high-quality, individualized care (8). Thus, nurses' poor utilization of this tool in the study setting raises questions about the quality of care they render to patients. Moreover, poor documentation of care processes hinders the continuity of care and robs the system of evidence that can be used for accountability, research and educational and legal purposes (10). Documentation in nursing is proof of professional ability and competence (13); hence it is an activity that should be taken seriously by nurses. Poor documentation has been reported in other studies in the study setting (30) and therefore requires urgent actions to address this gap in nursing care.

Age and qualification were significantly associated with the practice of the nursing process in our study setting. Younger nurses and those with lower qualifications utilizing the nursing process more frequently than older nurses and those with advanced qualifications. In the study setting, younger nurses and those with lower qualifications are more likely to be providing bedside care compared to advanced practice nurses who predominantly work in managerial roles with minimal direct patient caregiving.

It is worth noting that the study hospitals serve as clinical teaching hospitals for pre-registration nursing students in this region of Cameroon. This poor utilization of the nursing process could impact the training of students (13), with a continuing negative consequent effect on patient care quality. The nursing supervisory team should institute strategies to track and sanction poor utilization and documentation of the nursing care process and identify and encourage standard practices. Hospital management also needs to ensure that nursing forms and adequate nursing service staffing are in place to reduce nurses' workload. The lack of resources has been reported as an essential factor in poor documentation practices (4, 13, 14).

As of 2011, the nurse-to-patient ratio in the South West Region of Cameroon was 0.87 per 1,000 (31). With this low ratio, there is bound to be an increased workload on the nurses making the cumbersome documentation task challenging to attain. More nurses should be employed to reduce the nursing shortage in hospitals. Having the right quantity and mix of nurses can potentially reduce the workload and time constraints raised by this study's participants

and consequently improve the utilization of the nursing process. This could go a long way to improving the quality of nursing care and patient care outcomes.

Conclusion

Most nurses in this study had a good knowledge of the Nursing Process. However, most nurses did not utilize the nursing process effectively in patient care. The lack of nursing process documentation forms in patient files and increased workload due to nursing shortage hinders the effective utilization of the nursing process in the study hospitals. There is a need for nurse educators to develop refresher courses on the nursing process and to use active learning strategies that encourage the transfer of learning to practice. Moreover, hospital administration should ensure adequate staffing to reduce the workload on individual nurses and potentially improve the use of the nursing process and quality patient care.

Limitations

The study only included two hospitals in Fako, and the sample size was small. Thus, study findings could not be generalized to other hospitals in the country but could inform stringent supervision to ensure effective utilization of the nursing process.

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Conflict of interest

The authors declare that they do not have any conflict of interest.

References

1. Fernández SD, León SG, Bazán MJA, Cerro JLPD, Marques-Vieira CMA, Rivas FJP. Application of anthropometric methods in the nursing process of nursing research. Rev Bras Enferm. 2020 Dec 21;73(suppl 6):e20190604.
2. Melin-Johansson C, Palmqvist R, Rönnberg L. Clinical intuition in the nursing process and decision-making—A mixed-studies review. Journal of Clinical Nursing. 2017 Dec;26(23-24):3936-49.
3. Baraki Z, Girmay F, Kidanu K, Gerensea H, Gezehgne D, Teklay H. A cross sectional study on nursing process implementation and associated factors among nurses working in selected hospitals of Central and Northwest zones, Tigray Region, Ethiopia. BMC Nursing. 2017 Dec;16(1):1-9.
4. Silva AMD, Colaço AD, Vicente C, Bertoncello KCG, Amante LN, Demetrio MV. Perceptions of nurses about the implementation of the nursing process in an intensive unit. Revista Gaucha de Enfermagem. 2021 Mar 24; 42:e20200126. English, Portuguese.
5. Alemu B, Kebede T. Factors affecting implementation of nursing process among nurses working in governmental hospitals, Oromia region, Ethiopia, 2016: Cross-sectional study. Age. 2020;25(29):45.
6. Rabelo-Silva ER, Dantas Cavalcanti AC, Ramos Goulart Caldas MC, Lucena AD, Almeida MD, Linch GF, da Silva MB, Müller-Staub M. Advanced nursing process quality: comparing the International Classification for Nursing Practice (ICNP) with the NANDA-International (NANDA-I) and Nursing Interventions Classification (NIC). Journal of Clinical Nursing. 2017 Feb;26(3-4):379-87.
7. Buchanan J, Dawkins P, Lindo JL. Satisfaction with nursing care in the emergency department of an urban hospital in the developing world: A pilot study. International Emergency Nursing. 2015 Jul 1;23(3):218-24.
8. Pérez Rivas FJ, Martín-Iglesias S, Pacheco del Cerro JL, Minguet Arenas C, Garcia Lopez M, Beamud Lagos M. Effectiveness of nursing process use in primary care. International Journal of Nursing Knowledge. 2016 Jan;27(1):43-8.
9. Liu Y, Liu H. Utilization of Nursing Defect Management Evaluation and Deep Learning in Nursing Process Reengineering Optimization. Computational and Mathematical Methods in Medicine. 2021 Nov 15;2021:8019385.
10. Gazari T, Apiribu F, Afaya RA, Awenabisa AG, Dzomeku VM, Mensah AB, Amooba PA, Kukeba MW. Qualitative exploration of the challenges and the benefits of the nursing process in clinical practice: A study among registered nurses in a municipal hospital in Ghana. Nursing Open. 2021 Nov;8(6):3281-90.
11. Hagos F, Alemseged F, Balcha F, Berhe S, Aregay A. Application of nursing process and

its affecting factors among nurses working in mekelle zone hospitals, Northern Ethiopia. Nursing research and practice. 2014 Feb 6; 2014:675212.
12. Zeleke S, Kefale D, Necho W. Barriers to implementation of nursing process in South Gondar Zone Governmental hospitals, Ethiopia. Heliyon. 2021 Mar 1;7(3):e06341.
13. Spazapan MP, Marques D, Almeida-Hamasaki BP, Carmona EV. Nursing Process in Primary Care: perception of nurses. Rev Bras Enferm. 2022 Jun 24;75(6):e20201109.
14. Mwangi C, Meng'anyi LW, Mbugua RG. Utilization of the nursing process among nurses working at a level 5 hospital, Kenya. International Journal of Nursing Science. 2019;9(1):1-11.
15. Mbithi BW, Mwenda CS, Karonjo J. Observed utilization of the nursing process among nurses in selected public health care facilities in Kenya. International Journal of Nursing. 2018;8(5):77-82.
16. Zamanzadeh V, Valizadeh L, Tabrizi FJ, Behshid M, Lotfi M. Challenges associated with the implementation of the nursing process: A systematic review. Iranian Journal of Nursing and Midwifery Research. 2015 Jul;20(4):411-9.
17. Seçer S, Karaca A. Evaluation of nurses' perceptions of nursing diagnoses and their opinions regarding the application of nursing process. Florence Nightingale Journal of Nursing. 2021 Jun;29(2):229-38.
18. Zewdu S AM. Determinants towards Implementation of Nursing Process. American Journal of Nursing Science 2015;4(3):44-9.
19. Adraro Z, Mengistu D. Implementation and factors affecting the nursing process among nurses working in selected government hospitals in Southwest Ethiopia. BMC Nurs. 2020;19(1):105.
20. Lee TT, Chang PC. Standardized care plans: experiences of nurses in Taiwan. J Clin Nurs. 2004;13(1):33-40.
21. Agyeman-Yeboah J, Korsah KA, Okrah J. Factors that influence the clinical utilization of the nursing process at a hospital in Accra, Ghana. BMC Nursing. 2017 Jun 9;16:30.
22. Tadzong-Awasum G, Dufashwenayesu A. Implementation of the nursing process in Sub-Saharan Africa: An integrative review of literature. International Journal of Africa Nursing Sciences. 2021 Jan 1;14:100283.
23. Miskir Y, Emishaw S. Determinants of nursing process implementation in north east Ethiopia: cross-sectional study. Nursing research and practice. 2018 Sep 6;2018:7940854.
24. Agyeman-Yeboah J, Korsah KA. Non-application of the nursing process at a hospital in Accra, Ghana: lessons from descriptive research. BMC Nursing. 2018 Dec;17(1):1-7.
25. Semachew A. Implementation of nursing process in clinical settings: the case of three governmental hospitals in Ethiopia, 2017. BMC research notes. 2018 Dec;11(1):1-5.
26. Ghezzi JF, Higa ED, Lemes MA, Marin MJ. Strategies of active learning methodologies in nursing education: an integrative literature review. Revista Brasileira de Enfermagem. 2021 Mar 24;74(1):e20200130.
27. Mlambo M, Silén C, McGrath C. Lifelong learning and nurses' continuing professional development, a metasynthesis of the literature. BMC Nursing. 2021;20(1):62.
28. Bindon SL. Professional development strategies to enhance nurses' knowledge and maintain safe practice. AORN Journal. 2017 Aug 1;106(2):99-110.
29. Swift A, Twycross A. Using ways of knowing in nursing to develop educational strategies that support knowledge mobilization. Paediatric and Neonatal Pain. 2020 Dec;2(4):139-47.
30. Ebob-Anya BA, Bassah N, Palle JN. Management of cellulitis and the role of the nurse: A 5-year retrospective multicentre study in Fako, Cameroon. BMC Research Notes. 2019 Dec;12(1):452.
31. Tandi TE, Cho Y, Akam AJ, Afoh CO, Ryu SH, Choi MS, Kim K, Choi JW. Cameroon public health sector: shortage and inequalities in geographic distribution of health personnel. International Journal for Equity in Health. 2015 May 12;14:43.