ORIGINAL ARTICLE

NURSING PROCESS IMPLEMENTATION AND ASSOCIATED FACTORS AMONG NURSES WORKING AT WEST AMHARA REFERRAL HOSPITALS

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ABSTRACT

Background: *Nursing process is a systematic problem-solving approach used to identify, prevent and treat potential health problems. It is a method of assessing, diagnosing, planning, implementing and evaluating individualized care for clients in any situation of health or illness. This study aimed to assess nursing process implementation and associated factors among nurses working in west Amhara referral hospitals.*

Methods: *An institution-based cross-sectional quantitative study design triangulated with a phenomenological qualitative study design was used. The simple random sampling technique was employed to select study participants for the quantitative part and purposive sampling was used to select key informants for the qualitative part. Data were collected among nurses working in west Amhara referral hospitals from February to March 2017.*

Results: *The overall nursing process implementation among nurses in west Amhara referral hospitals was61%(95% CI: 56.0, 65.9).Availability of basic equipment(AOR=5.39; 95% CI: 2.55, 11.38), patient to nurse ratio (AOR=3.67; 95% CI: 1.72, 7.82),knowledge of nurses (AOR= 20.41; 95% CI: 7.23, 57.60), regular supportive supervisions (AOR=3.22; 95% CI: 1.55, 6.68), timely reporting (AOR= 3.58; 95% CI: 1.20, 11.61) and patient disappearance (AOR= 0.38 ;95% CI:0.18,0.81) were significantly associated with nursing process implementation.*

Conclusion: *The overall implementation of nursing process in west Amhara referral hospitals was low. Factors such as availability of equipment, patient to nurse ratio, knowledge of nurses, supportive supervision, timely reporting and patient disappearance were significantly associated with nursing process implementation. Hence, it is necessary to strengthen supportive supervision, optimizing patient to nurse ratio, updating nurses' knowledge, strengthening patient counselling to reduce patient disappearance and scaling up timely reporting systems.*

Key words*: Nursing Process Implementation, Factors, Hospitals.*

INTRODUCTION

Nursing process is a continuous process of critical thoughts. It needs collecting facts, scrutinizing and inferring data, making decisions, setting objectives, identifying priorities, selecting suitable interferences, realizing these interferences and assessing the effects to decide if the plan has been successful (1).It is also a systematic method of assessing, diagnosing, planning, implementing and evaluating individualized care for clients in any situation of health or illness (2).According to the Ethiopian Hospitals Reform Implementation Guideline (EHRIG) nursing process is implemented for patients who are treated as inpatient and admitted for 24 hours or more (3).

It guarantees that clients are receiving quality care. It also helps for the standardization of service provision, appropriate documentation, collective accountability during the clients time-span of staying, maintaining safety, reducing the incidence of avertable events, actively tackling harms before they happen, and enhancingpleasure(4).

A researched one in Africa showed that nurses were not implementing the nursing process practically

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even though they agree about its advantages for clients. Lack of adequate passion, shortage of nursing personnel, absence of recording format, poor follow ups, insufficient time for implementing, lack of emphasis, poor instruction, and too little education were some of the factors affecting the implementation of nursing process (5-7).

Poor nursing process implementation results in inadequate caring, causing disagreements, making mistakes during medication, readmission with the same diseases, reducing pleasure, increasing infection transmission anddeath(8-10). The health policy of Ethiopia gives special attention to the provision of quality health care(11)though nursing process implementation among different health facilities is still low. A study conducted among selected hospitals of Ethiopia showed that nursing process implementation was low ranging from 32.7% to 52.1% (7, 9, 12-14).

Hypothetically, if nurses do not provide basic nursing care, the success of patient progress might deteriorate and lead to unavoidable adverse patient outcomes(15). Despite the fact that the implementation of the process was well examined in the majority of the industrialized nations, the problem has rarely been studied in developing countries, including Ethiopia (16). Therefore, this study intended to assess the level of nursing process implementation and exploring factors affecting implementation among nurses in west Amhara referral hospitals by using a mixed method.

METHODS

Study Setting: An institution-based cross-sectional quantitative study design triangulated with phenomenological qualitative study design was used. The simple random sampling technique was used to select study participants using their payroll list as sampling frame for the quantitative component. The purposive sampling technique was used for the selection of key informants for the qualitative component based on their experience, position and working wards. All nurses working in west Amhara referral hospitals were the source population, whereas nurses working at inpatient wards during data collection were the study population. Nurses who were missing during data collection and newly recruited and served in the hospitals for less than six months were excluded.

Sample size determination: The sample size for the quantitative study was determined as follows. For the first objective, sample size was determined by using the single population proportion formula with the assumption of proportion (p) =37.1% (17) , standard normal distribution Z α/2 with 95%CIat 5%level of significance and margin of error (d) =0.05.The sample size obtained was 353. After adding a 10% non- response rate, the final sample size for the first objective was 388.

Sampling procedure: First, the sample size was proportionally allocated to the three hospitals based on their number of ward nurses; then, the simple random lottery method was used to select participants using their list on the pay roll as a sampling frame. Patients admitted for 24 hours or more to all wards and discharged one week before the actual data collection were taken as the sampling frame. Then, one of the chart of patients who were cared for by a nurse who filled a pre-coded self-administered questionnaire was selected by the simple random selection method. For the qualitative part, seven key informants were selected for in depth interview based on their experience and current position in each ward. The sample size for qualitative part was determined at a saturation of ideas.

The dependent variable was nursing process implementation, whereas the independent variables were socio demographic factors (age, sex, educational level, salary, work experience), organization related

factors (availability of basic equipment, supportive supervision, on the job training , reporting of their activities, working time, overtime work, workload, patient to nurse ratio), nurse profession related factors (knowledge ,attitude) and patient related factors (disappearance, cooperativeness, ability to collect the necessary equipment) and hospital type.

Operational Definitions

Nursing process implementation: If nurses performed the nursing process using the five steps, namely nursing assessment, diagnosis, care plan , intervention and evaluation the process was considered as implemented, and if they performed less than the five steps of the process it was taken as the process was not implemented(3).

Knowledge: The ability of nurses to answer nursing process related-questions; those who answered > 80 %of questions were considered as highly knowledgeable, between 60-80 % moderately knowledgeable and < 60% had poor knowledge(17).

Attitude :Participants who scored 50 % and above on attitude questions were categorized as having favorable attitude, and those who scored less than 50% unfavorable attitude(18).

Data collection tools and procedures: The data were gathered by using both quantitative and qualitative techniques.

Quantitative : A pre-coded self-administered questionnaire developed by reviewing literature(9, 17) was used to collect socio demographic, professional, and organizational data. A data extraction checklist adopted from the Ethiopian Hospitals Reform Implementation Guide Line(3)was used to collect nursing process implementation data on patient cards through record reviews.

Qualitative data: In-depth interview for each of the key informants was conducted using the interview guide. It was done after arranging comfortable time and place for key informants in the hospitals. The interview began with open-ended questions asking the nurses to describe their experiences. Then, the key informants were asked to describe how they experienced parts and details of the implementation, factors affecting their implementation and what implications and relevance it might have for patients. It was important to allow the participants to take their time describing their experience and to talk freely without any frustration.

Interviewers had a chances to raise issues that were not specifically addressed in the interview guide. In depth interview was conducted for about 20 to 25 minutes to each key informant. The interviewing process was stored using tape recorders and written notes. Then, the recorded tape was transcribed by listening.

Six BSc degree graduate nurses who were working at Maraki, Han and Debremarkos health centers were recruited. A one-day training was given to data collectors on the basic techniques of gathering information. Supervision was done during data collection by the principal investigator. A pre-test was administered to 39 nurses at Debretabor hospital to ensure the validity of the questionnaire and make modifications on the tool.

Data analysis: Quantitative: After checking their completeness, the data were entered into Epi info version 7 and exported to SPSS version 20 for cleaning, merging and analysis. Descriptive statistics were presented by using graphs and tables. Bi-variable logistic regression analysis was done for each of the independent variable with outcome variable and variables with p-value less than 0.2 during the bi-variable analysis were entered into the multi-variable logistic regression analysis. Variables with p-value less than 0.05 during the multivariable analysis were declared

statistically significant. Adjusted Odds Ratio (AOR) with a 95% Confidence Interval (CI) was used for identifying variables significantly associated with the outcome and its level of significance. The qualitative data were analyzed through thematic content analysis.

Ethical considerations: Ethical clearance was obtained from the Ethical Review Committee of the University of Gondar, College of Medicine and Health Sciences, Institute of Public Health. Permission letter was obtained from the Regional Health Bureau and the respective hospitals. Written informed consent was secured from each participant who was informed about the purpose and importance of the study. Participants were also given assurance that their names were not written on the questionnaire and that confidentiality of data was protected at all levels.

RESULTS

Socio demographic characteristics: A total of 364 nurses with a response rate of 93.8% participated in this study. Out of the respondents, 52.2% were male; 76.9% were 21-30 years of age; the median age of respondents was 28 years; 52.7% were married; 58% had 6 months to 4 years of work experience, and 86.5% were first degree graduates. Of thestudy participants,51.1%were from the University of Gondar followed by 31.3%FelegeHiwot and 17.6% Debremarkosereferral hospitals (Table 1).

Table 1: Socio demographic characteristics of nurses in west Amhara referral hospitals 2017

Variables	Category	Frequency	Percentage
Sex	Male	190	52.2 %
	Female	174	47.8 %
Age in years	21-30	280	76.9%
	31-40	66	18.1%
	≥40	18	5%
Marital status	Single	151	41.5%
	Married	192	52.7%
	Others	21	5.8%
Work experience in years	6 mon-4 yrs	211	58%
	5-9	104	28.4%
	10-14	25	6.9%
	≥15	24	6.6%
Educational status	Diploma	29	8 %
	First degree	315	86.5 %
	Second degree	20	5.5 %
Types of hospital	University of Gondar	184	51.1%
	Felegehiwot	114	31.3%
	Debremarkose	64	17.6%

Level of nursing process implementation: The majority,75.5%, of the nurses implemented the assessment phase of the process; 67.6%developed nursing diagnosis;63.2%planned nursing care;62.6% implemented their plan, and 61.5% performed the evaluation phase of the process. The overall implementation among nurses working at west Amhara referral hospitals was61% (95% CI: 56.0, 65.9)**.**

Organization related factors: In this study, 59.1% of the respondents stated that there were regular supportive supervisions for the nursing process implementation. About 60.2% of the nurses were working less than or equal to 8 hours per day; 66.2% were assigned to≤10 patients, and 69.5% reported the necessary equipment was available for patient care (Table 2).

Table 2: Organization related factors relating to nursing process implementation among nurses in west Amhara referral hospitals 2017

Variables	Category	Frequency	Percentage
Patients to nurse ratio	≤10	241	66.2%
	>10	123	33.8%
Working hours	≤8 hrs	219	60.2%
	>8hrs	145	39.8%
Availability of basic equipment	Available	250	69.5%
	Not available	114	30.5%
Supportive supervision	Irregularly	149	40.9%
	Regularly	215	59.1%
Attending on the job trainings	Yes	147	40.4 %
	No	217	59.6 %
Attending orientations	Yes	170	46.7 %
	No	194	53.3 %

Patient related factors on nursing process implementation: In this study, patient disappearance before completing the process was 54.7%;lack of cooperation to services were 29.7%; failure to collect the required materials for the nursing process were 27.2%,and 41% of the patients came to the hospitals with complications difficult to give the whole components of nursing care (Fig 1).

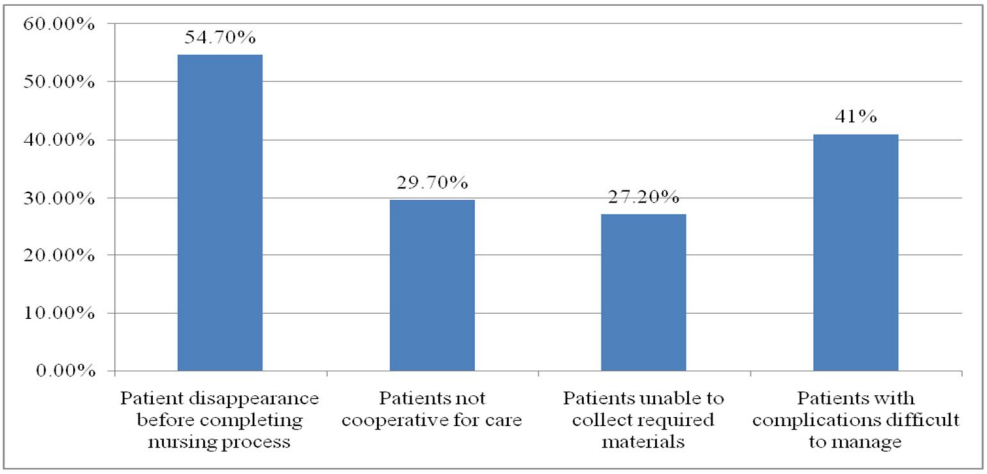

Figure 1: *Patient related factors for not implementing the nursing process among nurses at west Amhara referral hospitals 2017*

Challenges to nurses at work places at west Amhara referral hospitals: A number of factors were identified to have interfered with the implementation of the process. Of these, timely reporting, poor communication with co-workers, autocratic leadership and poor relationships with physicians identified to have contributed 23.9, 17.6, 53.3, and 50% of the challenges, respectively. In addition, 26.6% of the study participants had poor knowledge, 49.2% moderate knowledge, 24.2%advanced knowledge, and 84.1% favorable attitude towards the implementation (Table 3).

Table 3: Challenge of nurses on nursing process implementation at west Amhara referral hospitals 2017

Variables	Category	Frequency	Percentage
Caring for too many patients	Yes	165	45.3%
	No	199	54.7%
Timely reporting	Yes	87	23.9%
	No	277	76.1%
Decisions made without staff	Yes	187	51.4%
	No	177	48.6%
Poor communication with co-workers	Yes	64	17.6%
	No	300	82.4%
Poor relationship with physicians	Yes	184	50.5%
	No	180	49.5%
Autocratic leadership	Yes	194	53.3%
	No	170	46.7%
Knowledge of nurses	High	88	24.2%
	Moderate	179	49.2%
	Poor	97	26.6%
Attitude of nurses	Favorable	306	84.1%
	Unfavorable	58	15.9%

Factors associated with nursing process implementation: Variables that had less than 0.05 p-value during the multivariable logistic regression analysis were statistically significant with the implementation of the process. Of nurses who worked in units, the ones that had basic equipment were 5.39 times more likely (AOR=5.39; 95%CI: 2.55,11.38) to implement the process than such nurses who had no similar equipment. Nurses who were assigned to 10 or less patients were 3.67 times more likely to implement (AOR=3.67; 95%CI: 1.72,7.82)compared to those who were assigned to more than10patients. *A 28 years old nurse explains,* "I*t is difficult to perform the nursing process with the current patient to nurse proportion. Only 2 nurses are assigned to 28 patients at weekends and nightshifts in my ward because of this we are not implementing he process at this time". Another 33 years old key informant says, "The problem is the flow of patients and the number of nurses are totally mismatched; due to this, nurses are burnt-out; patient dissatisfaction mounts; sometimes medication errors are made."*

Among nurses who worked in units and had regular supportive supervision, implementation was 3.22 times (AOR=3.22; 95%CI: 1.55, 6.68)better compared to those nurses who worked in units without

irregular supportive supervisions. *A 35years old nurse states, "Our supervision system is continuous and follows a two-way communication approach which is more constructive and motivating to staff. Thus, we simply identify the weaknesses and strengths of each worker and support based on their needs, and this helps us to perform better".*

Nurses working in units who had trend of timely reporting their activities were 3.58 times more likely to implement (AOR= 3.58; 95% CI: 1.20, 11.61) than nurses who did not report in time. *From the in depth interview, it was identified that hospitals had weekly, monthly, quarterly, mid-yearly and yearly reporting systems of nursing process implementation. One BSc degree graduate head nurse says, "As a team leader, I used it as an alarm because it makes me complete my work timely and reduce negligence*". *Another key informant explains," It solves a problem early before it becomes the problem of the organization. In addition, it increases the accountability and responsibility of professionals."*

Nurses who had adequate knowledge on nursing process were 20.41 times more likely to implement nursing process (AOR= 20.41; 95%CI: 7.23, 57.60)than nurses who had poor knowledge on the process. *In the in depth interview, it was noted that it was difficult to practice the process given the current knowledge of nurses it. A 33years old nurse states, "Still quality is under question because to implement the process, knowledge is required about its implementation. There are nurses who cannot differentiate between actual and potential nursing diagnoses."*

The implementation of the process among disappearing patients decreased by 62 % compared with patients who stayed until the process was completed (AOR= 0.38 ;95% CI:0.18,0.81).*A 34years old nurse complains, "The bulkiness of the format affected the implementation. The first three pages of the format are not necessary, rather they waste our time; simply, they beat around the bush rather than focusing on the actual problem of the patient"*(Table 4).

DISCUSSION

This study aimed at assessing the level of nursing process implementation and associated factors among nurses working at west Amhara referral hospitals, northwest Ethiopia. The level of nursing process implementation was 61% (95%CI: 56.0-65.9). This result was higher than the findings of studies conducted in Addis Ababa government hospitals (52%)(9), Debremarkose referral & Finoteselam district hospitals(37.1%)(17), Arbaminch general hospital(32.1%)(12),and Bale zone general hospital (52%) (19).The possible explanation for the differences might be variations in study settings, which means the other studies were conducted on primary and general hospitals. In the studies, the patients might not have been severely ill due to which they were discharged early, while severely ill patients might have been referred to other referral hospitals. At referral hospitals, most patients are referral cases and advanced procedures are performed. As a result, most patients need palliative (nursing) care and patient stay also increases. To the contrary, this finding was lower than those of studies conducted in Greece(82%)(20), Brazil (82%)(21),and Nigerian hospitals (73.6%)(22).This variation might be due to methodological differences. In Greece, a follow up study was conducted; since the nursing process implementation is a process, the chance of implementing it in a follow up study might increase. The other possible explanation might be that nurse-to-patient proportion can vary from region to region within a country, country to country and continent to continent. The average nurse-to-patient proportion in high -income countries is almost eight times greater than that in low-income countries(23).

Table 4: Factors associated with nursing process implementation in west Amhara referral hospitals 2017

Variables	Category	Nursing process implementation		COR 95%CI	AOR(95%CI)
		Yes	No		
Availability of basic equipment	Yes	192	58	9.269(5.57,15.43)	5.39(2.55,11.38)*
	No	30	84	1	1
Non autocratic	Yes	140	37	4.85(3.05,7.70)	1.95(0.98,3.85)
	No	82	105	1	1
Patient to nurse ratio	<10	178	63	5.073(3.18,8.10)	3.67(1.72,7.82)*
	>=10	44	79	1	1
Decision with staff	Yes	140	37	4.845(3.05,7.70)	1.915(0.92,3.97)
	No	82	105	1	1
SS	Regular	165	50	5.326(3.37,8.42)	3.22(1.55,6.68)*
	Irregular	57	92	1	1
On job training	Yes	108	39	2.502(1.59,3.94)	3.217(0.85,3.69)
	No	114	103	1	1
Timely reporting	Yes	81	6	13.021(5.499,30.835)	3.58(1.20,11.61)*
	No	141	136	1	1
Knowledge of nurses	Poor	20	77	1	1
	Moderate	127	52	9.403(5.221,16.934)	10.85(4.68,25.16)*
	High	75	113	22.21(10.31,47.84)	20.41(7.23,57.60)*
Pt disappearance	Yes	102	97	0.39 (0.25,0.61)	0.38(0.18,0.81)*
	No	120	45	1	1
Pt complication	Yes	74	75	0.45(0.29,0.69)	0.74(0.35,1.56)
	No	148	67	1	1

**p-value less 0.05 significant, SS=Supportive Supervision, pt=patient*

Nursing process implementation among nurses working in units with basic equipment available was5.39 times higher compared to nurses working in units under shortage of basic equipment. This result was in line with those of studies in Harari and DireDawa (24),Debremarkose and Finoteselam hospitals(17). The possible reason might be that any nursing process activity could not be implemented without basic equipment. Absence of basic medical supplies necessary for the patient and personal protection of nurses affect results for fear of disease transmission. The implementation of the nursing process among nurses who had good knowledge on the process was 20.41timeshigher than that of nurses who had poor knowledge. This result was supported by those of studies conducted in Addis Ababa government(9) and Arbaminch hospitals(12).This might be so because nurses who had poor knowledge might have low motivation and confidence.

In this study, the implementation of the process among nurses assigned to 10or less patients was 3.67times higher than that of nurses assignedto10 or more patients. This result was similar to those of studies done in Mekelle zone (25),Harari, DireDawa (24) andArbaminchhospitals(12). This might be so because nurses assigned to above the optimal number of patients had a high probability of "burn out", fatigue, and low job satisfaction.

Nurses who worked in units and reported their performances timely implemented the process 3.5 times better than their counterparts. The result was support-

ed by a study done in Arbaminch hospital(12). This might be because timely reporting gives chances to identify poor performances on time and take corrective actions. It also helps to identify the root causes of problems and increases the accountability and responsibility of nurse professionals.

Nursing process implementation among disappearing patients dropped by 62% compared with patients who stayed until the process was completed. This result was in line with those of studies reported in Debremarkose and Finoteselam(17), Harari and DireDawa(24)and Addis Ababa government hospitals(9).The possible explanation might be that nurses could not complete the care they planned because of early discharges of patients. This result was also similar to that of a qualitative study in South Africa, which showed that patients had negative experiences about the care given by health care providers (26).This might be due to poor understanding of modern medicine by patients, poor nurse client interaction and poor counselling of clients regarding the nursing process.

The implementation of the nursing process among nurses who worked in units with regular supportive supervision was 3.22times higher compared with their counter parts. This finding corresponded to that of a study conducted at Mekelle zonal hospitals (25).The possible explanation might be that good experience sharing of supervision team members with nurse professional shelped the latter to fill gaps timely.

LIMITATIONS

The study didn't show the cause-effect relationships of variables because of its cross sectional nature. There might have been over or under reporting of implementations because some nurses might provide services to clients without recording them. On the other hand, some nurses might record what they did not implement. Another limitation might be that while nursing process is a patient-centered service, the study didn't consider patients as participants.

CONCLUSION

The overall nursing process implementation among nurses working in west Amhara referral hospitals was low (61%). Knowledge of nurses, patient to nurse ratio, disappearance/self-discharge of patients, work place supportive supervision, availability of necessary equipment for patient care, and timely reporting were found to be factors associated with the implementation of the process.

Therefore, health care managers and planners had better prepare trainings on the process implementation to enhance the knowledge of nurses, strengthen supportive supervision and try to balance the nurse-to-patient ratio. In addition, hospital managers need to make the necessary equipment available for nursing care implementation and scale up timely reporting to improve the implementation. Nurses should enhance their counselling services to admitted patients to reduce disappearance. Researchers need to study this area at private hospitals, too.

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Authors' contribution: CT was involved in the conception, design, analysis, interpretation, report and manuscript writing. AF and AD involved in the design, analysis, interpretation of the data, and manuscript writing. All authors read and approved the final manuscript.

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REFERENCES

1. Cruz DdALM, Guedes EdS, Santos MAd, Sousa RMCd, Turrini RNT, Maia MM, et al. Nursing process documentation: rationale and methods of analytical study. Revista brasileira de enfermagem. 2016;69(1):197-204.
2. Doenges ME, Moorhouse MF. Application of nursing process and nursing diagnosis: an interactive text for diagnostic reasoning: FA Davis; 2012.
3. Federal Ministry of Health Ethiopia : . Ethiopian Hospitals Reform Implementation Guidelines. 2010;1.
4. DM T, and DH, MT S. Improvement in Adherence to Ethiopian Hospitals Reform Implementation Guideline nursing standards in Asella Referral Teaching Hospital. 2015;2.
5. Edet A, Mgbekem M, Edet O. Professional Nurses' Perception and Utilization of the nursing process at the University of Calabar Teaching Hospital (UCTH), Calabar, Nigeria.
6. Fadia A. Abdelkader WNEO. Factors Affecting Implementation of Nursing Process: Nurses' Perspective, Mansoura University hospital, Egpt
7. IOSR Journal of Nursing and Health Science (IOSR-JNHS). May to June,2017;Volume 6 (Issue 3).
8. 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;16 (1):54.
9. Hanisch P, Honan S, Torkelson R. Quality improvement approach to nursing care planning: implementing practical computerized standards. Journal for healthcare quality : official publication of the National Association for Healthcare Quality. 1993;15(5):6-13; quiz
10. RMaMM MA. Assessment of Factors Affecting Implementation of Nursing Process Among Nurses in Selected Governmental Hospitals, Addis Ababa, Ethiopia. Open Access Journal 2014; 3:3.
11. Kripalani S, Jackson AT, Schnipper JL, Coleman EA. Promoting effective transitions of care at hospital discharge: a review of key issues for hospitalists. Journal of hospital medicine. 2007;2(5):314-23.
12. FMOH. In: health Mo. Addis Ababa e. Nursing care practice standards, Reference manual for nurses and health care managers in Ethiopia. 2011.
13. Shewangizaw Z, Mersha A. Determinants towards Implementation of Nursing Process. American Journal of Nursing Science. 2015;4 (3):45-9.
14. TA AZ. factors affecting implementation of nursing process among nurses in Bale zone Hospitals, South east Ethiopia. 2014.
15. HAaMA NA. The Implementation of Nursing Process and Associated Factors among Nurses Working in Debremarkos and Finoteselam Hospitals, Northwest Ethiopia. open access journal 2013. 2013;2(3).
16. de Vries EN, Ramrattan MA, Smorenburg SM, Gouma DJ, Boermeester MA. The incidence

and nature of in-hospital adverse events: a systematic review. Quality and safety in health care. 2008;17(3):216-23.

17. EA. S. The perception on, and use of, the nursing process in four African Countries. Afr J Nurs Midwifery. 2005;6(1):67-77.
18. Nurilign Abebe HAaMA. The Implementation of Nursing Process and Associated Factors among Nurses Working in Debremarkos and Finoteselam Hospitals, Northwest Ethiopia, 2013. open access journal. 2013;2:3.
19. Fisseha Hagos FA, 2 Fikadu Balcha,2, Semarya Berhe aAA. Application of Nursing Process and Its Affecting Factors among Nurses Working in Mekelle Zone Hospitals, Northern Ethiopia. Nursing Research and Practice. 2014.
20. Aragaw Z TA. factors affecting implementation of nursing process among nurses in Bale zone Hospitals, South east Ethiopia. 2014.
21. Elisabeth Patiraki SK, Angeliki Dreliozi and, . PP. Nursing Care Plans Based on NANDA, Nursing Interventions Classification, and Nursing Outcomes Classification: The Investigation of the Effectiveness of an Educational Intervention in Greece. International Journal of Nursing Knowledge. 2015;28.
22. Nomura AT, Silva MB, Almeida MA. Quality of nursing documentation before and after the Hospital Accreditation in a university hospital. Revista latino-americana de enfermagem. 2016;24:e2813.
23. Florin J, Ehrenberg A, Ehnfors M. Quality of nursing diagnoses: evaluation of an educational intervention. International Journal of Nursing Knowledge. 2005;16(2):33-43.
24. WHO : . Health work force. Geneva. HRH. 2006,.
25. Habte S. Nursing process and associated factors among Harari and Dredawa General Hospitals 2015.
26. 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;2014.
27. Ndou TV, Maputle SM, Risenga PR. HIV-positive patients' perceptions of care received at a selected antiretroviral therapy clinic in Vhembe district, South Africa. African journal of primary health care & family medicine. 2016;8 (2):e1-6.