Novelty Journals

ISSN 2394-7330

International Journal of Novel Research in Healthcare and Nursing
Vol. 7, Issue 3, pp: (153-164), Month: September - December 2020, Available at: www.noveltyjournals.com

Maternity Nurses' Compliance with Initial Antenatal Visit Guidelines

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Abstract: **Initial antenatal visit is a critical opportunity for maternity nurses to deliver care & support and give information to pregnant women. It is paramount for ensuring optimal health outcomes for women & children. Maternity nurses must be updated in their knowledge and be careful to compliance with initial antenatal guidelines. The purpose of the study was to assess maternity nurses' compliance with initial antenatal visit guideline. Methods: Descriptive research design. Subjects: Included all nurses (100) working at the ANC clinics. Setting: The study was conducted at antenatal (ANC) clinics of 5 maternity hospitals in Alexandria. Tools: Two tools were developed, Tool one: Nurses' knowledge about initial antenatal visit Questionnaire that was consisted of two parts: Part I: Socio-demographic characteristics of the study subjects. Part II: Nurses' knowledge about initial antenatal visit. Tool two: Maternity nurses' compliance with initial antenatal visit observational Checklist. Results: More than half (55%) of the studied nurses had fairly answered compared to 44% of them who had good answered. Seventy percent of them were fairly compliant with initial antenatal visit in ANC clinics compared to 27% of them who had poor in their compliance and only 3% of them had good compliance. In addition to, had statistically significant positive correlation between knowledge of maternity nurses about the initial antenatal visit and their compliance. Conclusions: less than three quarters of the studied nurses were fairly compliant with initial antenatal visit in ANC clinics. Recommendation: Periodic participation of nurses in training programs about ANC to improve their knowledge, skills and ensuring from their compliance with guidelines for initial antenatal visit.**

Keywords: **Maternity nurses, compliance, initial antenatal visit, guidelines.**

1. INTRODUCTION

Antenatal care (ANC) is defined as the routine care of pregnant women provided between conception and the onset of labor. It is an opportunity to provide care for prevention and management of existing and potential causes of maternal and newborn mortality and morbidity. The components of ANC include: risk identification; prevention and management of pregnancy related or concurrent diseases, health promotion and health education **(WHO, 2016; Ward S & Hisley S, 2015**).

WHO recommends that it is better for women to start antenatal care at a gestational age of less than 12 weeks. This is referred to as 'early antenatal care that is considered to be a critical opportunity for health providers to deliver care and support, and to give information to pregnant women in the first trimester of pregnancy. The initial ANC visit is highly important and the follow up visits are followed by information on each category of care in order to be provided during ANC visits such as: history, physical examination, laboratory and other tests, and health promotion as well as education **(Esherick JS, Clark DS & Slater ED, 2016; King Edward Memorial Hospital Obstetrics & Gynecology, 2016).**

Initial ANC is a critical moment for nurses to provide a number of screenings and tests, which are most effective early in pregnancy, including those which help to: correctly assess the length of pregnancy (gestational age) in order to allow accurate treatment of preterm labor, screen for genetic and congenital disorders, these screenings and tests can also provide folic acid supplementation in order to reduce the risk of neural tube defects, screen & treat iron deficiency anemia, screen and treat sexually transmitted infections (STIs), potentially capture non-communicable diseases such as diabetes and potentially provide guidance on modifiable lifestyle risks such as obesity, malnutrition and occupational exposure **(WHO, 2019; Hatfield NT, 2014)**.

Maternity nurses play a key role in saving lives through early detection and management of life-threatening conditions such as cardiovascular disease, hypertension and infection. This can occur by documenting the ways in which prenatal nurses provide care for pregnant women and help to reduce risk and promote more positive outcomes for both the pregnant women and the newborn **(Susan L, 2009; Motacki K & Burke K, 2017).**

Moreover, they have an important role during initial ANC visit thus the Ministry Of Health (MOH) set guidelines that must be compliance by maternity nurses. Compliance means the actions of obeying and following rules, instructions or requests. ANC guidelines should be through the incorporation of welcoming reception; development of educational and preventive actions without unnecessary interventions, early detection of diseases and identification of gestational risk; establishment of the link between antenatal care and place of birth as well as an easy access to quality health services from primary care to hospital care of high risk women**(Mersal FA, Esmat OM & Khalil GM, 2013; Department of Health, 2018).**Accordingly, the nurse must be aware of these guidelines and compliance of them.

Aim of this study

Assess maternity nurses' compliance with initial antenatal visit guidelines.

Research question

What is the compliance with initial antenatal visit guidelines among maternity nurses?

2. MATERIALS AND METHODS

Research design:

Descriptive research design was utilized in this study.

Setting:

The study was conducted at ANC clinics of 5 maternity hospitals in Alexandria city; El Shatby Hospital, Dar Ismail Hospital, El Gomhoria Hospital, Maternity Hospital and Karmouz El Omal Hospital.

Subjects:

All nurses (100) working at the previously mentioned settings.

Tools:

Two tools were developed & used by the researcher to collect the necessary data.

Tool one: Nurses' knowledge about initial antenatal visit Questionnaire: It was consisted of two parts**:**

Part I: Socio-demographic characteristics of the study subjects.

Part II: Nurses' knowledge about initial antenatal visit. It contained 13 items to assess nurses' knowledge about ANC visit. such as: its importance, S & S of pregnancy, ANC visit schedule, component of initial ANC visit, nursing management and health teaching during initial ANC visit. Nurses' response varied between correct and complete (3), but incomplete (2), incorrect answer (1). The total score ranged between 13 and 39.

Nurses' knowledge was ranked as follows:

- Poor for a total score < 21.

- Fair for a total score 21< 29.

- Good for a total score ≥ 29.

Novelty Journals

ISSN 2394-7330

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Tool two: Maternity nurses' compliance with initial antenatal visit observational.

This tool was developed by researcher based on MOH guideline in Egypt for initial antenatal visit. It contained 20 items to assess maternity nurses' compliance with initial antenatal visit guideline such as: complete history taking, physical assessment, local abdominal examination, laboratory investigations, determination of high risk pregnancy, health teaching during initial antenatal care visit. Nurses' compliance was scored as follows: completely done (3), incompletely done (2) and not done(1). The total score ranged between 20 & 60. Nurses' compliance was ranked as follows:

- Not done for a total score <33.

- Incompletely done for a total score 33< 46.

- Completely done for a total score ≥ 46.

Method:

-Permission from Faculty of Nursing - University of Alexandria was directed to the responsible authorities of the previously mentioned study settings then permission from MOH in Cairo was obtained as well as the director of health care centers & permission from Health Insurance Organization in Cairo governorate.

-Tool I was developed by the researcher based on extensive review of recent, relevant literature.

-Tool II was adapted from the MOH guidelines in Egypt for initial visit and tool I, II were tested for content validity by a jury of 5 experts in the related field. Also they tested for their reliability by test-retest technique.

-A pilot study was conducted on 10 nurses from the previously mentioned centers working at ANC clinic excluded from the study subjects.

-Data was collected by using observational checklist for each nurse twice and it was collected over a period of 8 months from the beginning of July 2018 till the end of February 2019. Each nurse was individually interviewed for 20-30 minutes by the researcher.

Statistical analysis:

-The collected data was revised, categorized, coded, computerized, tabulated & analyzed. Analysis of data was carried out using statistical package for social sciences (SPSS) version 18.

-Analysis of categorical data: cross tabulation with percentages were used to explore relationships between variables. Appropriate tests such as arithmetic mean, Monte Carlo, Fisher Exact, ANOVA test and Chi-square (χ^2) at 0.05 level of significance were used.

Ethical considerations:

The purpose of the study was explained to each nurse and then securing the subjects, informed written consent, keeping her privacy & right to withdraw at any time as well as assuring confidentiality of her data.

3. RESULTS

Table (1): Number and percent distribution of the study subjects according to their socio-demographic data

Socio demographic data	n = 100	
	No.	%
Age (years)		
<30	8	8.0
30-	22	22.0
≥40	70	70.0

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Marital status		
Single	10	10.0
Married	76	76.0
Divorced	5	5.0
Widowed	9	9.0
Level of education		
Bachelor	7	7.0
Diploma	79	79.0
Technical Nursing	14	14.0
Current job		
Nurse	92	92.0
Head nurse	8	8.0
Years of experience in nursing:		
<10	7	7.0
10-	22	22.0
20-	40	40.0
≥30	31	31.0
Years of experience in maternity nursing:		
<10	30	30.0
10-	26	26.0
20-	30	30.0
≥30	14	14.0
Min. – Max.	0.08 – 38.0	
Mean ± SD.	16.45 ± 10.37	

Table (1): reveals the socio-demographic characteristics of studied nurses. It was observed that 70% of the study subject aged 40 years or more. While 22% of them aged thirty years & more. 76% of them were married. Regarding to educational level: 79% of them diploma graduates. While Only 7% have Bachelor of nursing education. The vast majority of them work as nurse while only 8% of them work as head nurse. Nearly, two fifths of the subject's years of nursing experience work for 20 to 30 years. In maternity nursing: less than one-thirds of them work either for <10 years or 20 to 30 years. While 26% of them work for 10 to 20 years.

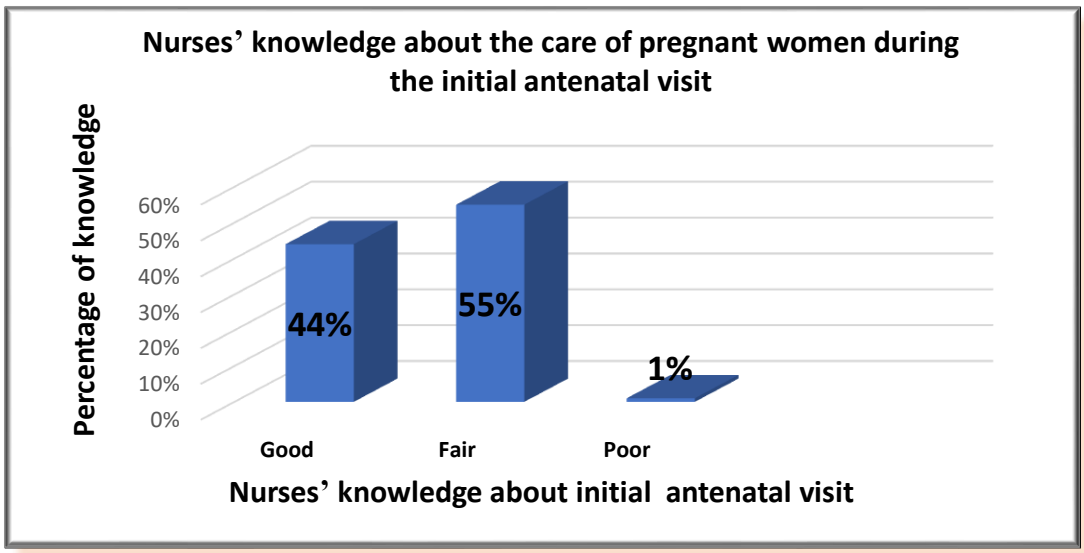

Figure (1):

According to figure (1) number & percent distribution of the studied nurses according to total score of nurses' knowledge reflects that more than half of the studied nurses had fairly answered compared to 44% of them who had good answered.

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Table (2): Number and percent distribution of the studied nurses according to their role during preparation & history taking

Nurse's role during preparation of ANC	n=100					
	Average					
	Completely done		Incompletely done		Not done	
	No.	%	No.	%	No.	%
Preparation of room.	45	45.0	55	55.0	0	0.0
Preparation of equipment.	33	33.0	67	67.0	0	0.0
Preparation of mother.	13	13.0	76	76.0	11	11.0
Preparation of nurse herself.	10	10.0	85	85.0	5	5.0
History taking:	21	21.0	45	45.0	34	34.0
Total score Min. – Max. Mean ± SD.	6.0 – 12.0 8.85 ± 1.47					
% score Min. – Max. Mean ± SD.	25.0 – 100.0 60.63 ± 18.32					

Table (2): demonstrates number & percent distribution of the studied nurses according to their compliance during preparation & history taking. It was observed that preparation of room was done incompletely by about 55% of them. As regards to preparation of equipment those who did it incompletely where more than two thirds. Regarding to preparation of the mother it was incompletely done by more than three quarters. The mean while 85% of the subject's preparation for themselves was incompletely done. Regarding to history taking it was observed that history taking was taken incompletely (45%) of the subjects.

Table (3): Number and percent distribution of the studied nurses according to their role during general physical examination

Nurse's role during general physical examination	n = 100					
	Average					
	Completely done		Incompletely done		Not done	
	No.	%	No.	%	No.	%
Observe posture, gait and physical characteristics.	1	1.0	6	6.0	93	93.0
Measure body weight and height.	4	4.0	9	9.0	87	87.0
Measure vital signs.	18	18.0	43	43.0	39	39.0
Examine neck	0	0.0	0	0.0	100	100.0
Examine breasts and nipples.	0	0.0	1	1.0	99	99.0
Examine the legs	2	2.0	2	2.0	96	96.0
Total score Min. – Max. Mean ± SD.	6.0 – 12.0 7.11 ± 1.33					
% score Min. – Max. Mean ± SD.	0.0 – 50.0 9.25 ± 11.10					

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Table (3): illustrates number & percent distribution of the studied nurses according to their role during general physical examination. It was observed that 93% of the subjects didn't observe posture, gait and physical characteristics. While 87% of the subjects didn't measure weight & height. Also, it was noticed that vital signs were measured incompletely by more than two fifths. All of them didn't examine neck & breast examination respectively. As well as examination of the legs wasn't done by 96% of the subjects.

Table (4): Number and percent distribution of the studied nurses according to their role during local examination

Nurse's role during local examination	n = 100					
	Average					
	Completely done		Incompletely done		Not done	
	No.	%	No.	%	No.	%
a. Inspection	0	0.0	0	0.0	100	100.0
b. Palpation	0	0.0	0	0.0	100	100.0
c. Auscultation	8	8.0	5	5.0	87	87.0
Total score Min. – Max. Mean ± SD.	3.0 – 5.0 3.21 ± 0.57					
% score Min. – Max. Mean ± SD.	0.0 – 33.3 3.50 ± 9.56					

Table (4): shows number & percent distribution of the studied nurses according to their role during local examination. It was observed that all nurses didn't perform inspection & palpation to the abdomen. Regarding to auscultation about 87% of them didn't do it.

Table (5): Number and percent distribution of the studied nurses according to their role during return visit and health teaching

Nurse's role during return visit and health teaching	= 100 n					
	Average					
	Completely done		Incompletely done		Not done	
	No.	%	No.	%	No.	%
Provide information about return visit and its importance	100	100.0	0	0.0	0	0.0
Give health teaching according to the pregnant woman's needs.	69	69.0	22	22.0	9	9.0
Total score Min. – Max. Mean ± SD.	4.0 – 6.0 5.60 ± 0.65					
% score Min. – Max. Mean ± SD.	50.0 –100.0 90.0 ± 16.28					

Table (5): shows the number & percent distribution of the studied nurses according to their role during return visit and health teaching. All the studied nurses provide health teaching about follow up and its importance. Regarding to health teaching according to pregnant woman's needs it was observed that more than two thirds (69%) provided it completely.

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ISSN 2394-7330

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Table (6): Number and percent distribution of the studied nurses according to their role during investigations and detection of high risk pregnancy

Nurse's role during investigations and detection of high risk pregnancy	n = 100					
	Average					
	Completely done		Incompletely done		Not done	
	No.	%	No.	%	No.	%
Perform urine analysis for albumin and glucose.	91	91.0	3	3.0	6	6.0
Perform blood examination for CBC, grouping, Rh and Hb ٪ test.	95	95.0	2	2.0	3	3.0
Provide information about high risk pregnancy.	13	13.0	15	15.0	72	72.0
Provide information about 8 warning signs.	18	18.0	29	29.0	53	53.0
Total score Min. – Max. Mean ± SD.	5.0 – 12.0 8.83 ± 1.52					
% score Min. – Max. Mean ± SD.	12.50 – 100.0 60.37 ± 18.97					

Table (6): demonstrates the number & percent distribution of the studied nurses according to their role during investigations and detection of high-risk pregnancy. Most of the subjects performed urine & blood analysis correct & complete. In addition to 72% of them didn't provide information about high risk pregnancy. Finally, 53% didn't provide information about the warning signs.

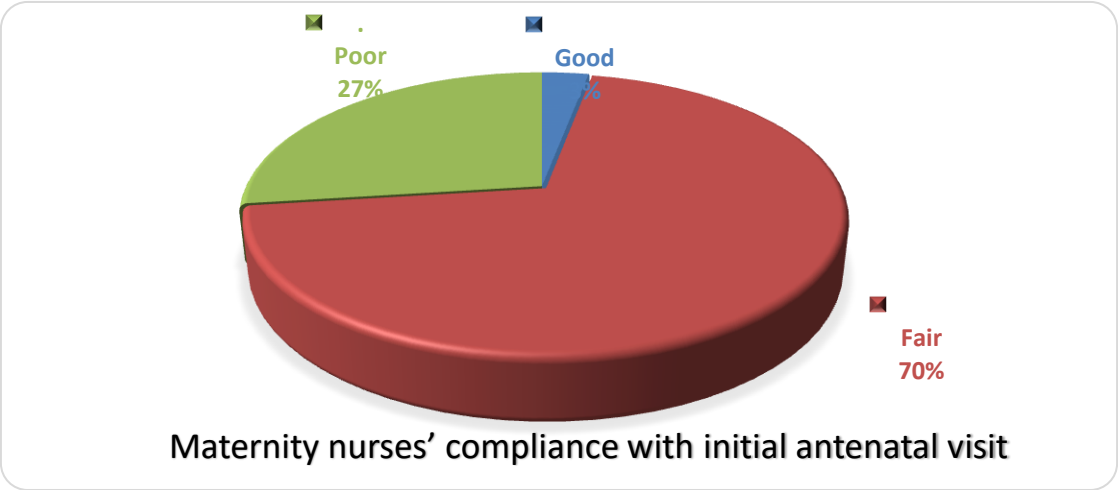

Figure (2):

According to figure (2): number & percent distribution of the studied nurses according to maternity nurses' compliance with initial antenatal visit. It was obvious that 70% of them were fairly compliant with initial antenatal visit in ANC clinics compared to 27% of them who had poor in their compliance and only 3% of them had good compliance.

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Table (7): Correlation between knowledge of maternity nurses about the initial antenatal visit and their compliance according to initial antenatal visit

Compliance	Overall knowledge						χ^2	^{MC}p
	Good (n=44)		Fair (n=55)		Poor (n=1)			
	No.	%	No.	%	No.	%		
Complete	3	6.8	0	0.0	0	0.0	5.745	0.292
Incomplete	30	68.2	39	70.9	1	100.0		
Not done	11	25.0	16	29.1	0	0.0		
r(p)	0.307* (0.002*)							

χ^2: Chi square test

MC: Monte Carlo

p: p value for association between knowledge and performance

r: Pearson coefficient

***: Statistically significant at $p \leq 0.05$**

Table (7): there is a positive significant correlation between knowledge of maternity nurses about the initial antenatal visit and their compliance (0.002*).

4. DISCUSSION

Maternity nurses play an important role during initial antenatal visit. Therefore there are guidelines to guide them to provide optimal care to pregnant women during initial antenatal visit. So that the present study aimed to assess maternity nurses' compliance with initial antenatal visit guideline.

Nurses' knowledge about antenatal care visit:

One of the specific objectives was to assess nurses' knowledge of ANC. The Findings of the current study showed that more than one half of the studied nurses had knowledge about antenatal care visit. This finding is in agreement with the finding of **(Libingi LM, Ngoma CM & Banda Y, 2019)** who revealed that less than three quarters of the subjects had knowledge levels. Further, **(Gusti T E, Tamtomo D & Murti B, 2018)** in which their results indicated that more than half of the subjects had knowledge. In the study of **(Rurangirwa A et al., 2018)** who found that more than half of the subjects had knowledge of ANC. This finding is supported with the findings of **(Ayiasi R Met al., 2014)**. Additionally, **(Chaudhary R &Karn B K, 2015)** who indicated that more than two thirds of the study subjects had knowledge of ANC. On other hand, this present findings contradict with the results of the study of **(Bogren U M, 2010)** who found that the majority of the subjects had poor knowledge levels regarding antenatal care. As well, the findings of the study that is done by **(Nyamtema A S et al., 2008)** revealed that the subjects had poor knowledge about antenatal care.

Nurses' compliance with initial antenatal visit observational Checklist.

In relation to the nurses' compliance with ANC visit guidelines during antenatal visit preparations, it was observed that the preparation of the mother was incompletely done by more than three quarters. This finding contradicts with the finding of **(Mekonnen N et al., 2017)** indicated that more than three quarters of mothers' procedure was explained. This was supported by the finding of observation in which women were invited to talk about their medical concerns in more than half of the subjects. More than three quarters of the subjects were examined respectfully. The study also supported that respectfully and friendly greeting was offered for more than half of them. Accordingly, the findings of the current study showed that the history taking was taken incompletely by the study subjects. This incomplete history taking could be attributed to the fact that maternity nurses in some antenatal clinics were allowed to take personal history only and the other clinical data were taken by physicians. These findings were in harmony with the findings of **(Simbar M et al., 2012)** who found that less than half of the subjects were taking history. Further, **(Nyarko P & Birungi H, 2006)** who revealed that the subjects were taking history incompletely from the pregnant women.

On the contrary, **(Libingi LM, Ngoma CM & Banda Y, 2019)** who reported that less than two thirds of midwives were observed taking history. Also, **(Chweya A R, 2018)** who revealed that more than half of the subjects were taking history from the pregnant women. As well, **(Horner V, 2014)** who reported that all nurses were highly complying in history taking. According to nurses' compliance with ANC visit guidelines during physical examination: findings of the current study indicated that most of the studied nurses did not observe posture, gait and physical characteristics. While more than four fifth of the studied nurses did not measure weight and height. Also, it was noticed that vital signs were measured incompletely by more than two fifths. All of them did not examine neck and breast examination respectively. As well as, the examination of the legs was not done by the vast majority of the study subjects. This result is on the contrary with the finding of **(Libingi LM, Ngoma CM & Banda Y, 2019)** who reported that the most of the subjects did head to toe examination. While less than half of the subjects measured body weight. Additionally, more than four fifth of the subjects measured blood pressure. Further, **(BeeckmanK et al., 2017)** who indicated that eighteen out of the 22 European countries their subjects measured blood pressure.

As well, the finding of **(Australian Health Ministers' Advisory Council. Clinical Practice Guidelines, 2015)** who reported that Routine measuring of the blood pressure is crucial for identifying the new onset of hypertension. Moreover, the finding of **(Chweya A R, 2018)** who revealed that only four fifth of the subjects were complying in physical examination. Also, the finding of **(Elkhalifa A E & Kuppuswamy S B, 2014)** who found that the majority of the subjects complied in physical examination. In addition, **(Sarker M et al., 2010)** and also, the finding of **(Horner V, 2014)** revealed that the vast majority of the subjects complied physical examination. This can be due to that more than three quarters of the study subjects were diploma graduates and the vast majority of them did not attend training sessions. Besides, according to the present finding, more than half of them knew incorrect answer for general examination. As regard to nurse's compliance with ANC visit guidelines during local examination: the findings of the current study which showed that all the studied nurses did not perform inspection and palpation to the abdomen. This finding contradicts with the result of **(Mekonnen N et al., 2017)** who found that the palpation of the fundus was done and the same findings can be seen by**(Horner V, 2014).** Furthermore, **(Amoakoh-Coleman M et al., 2016)** and also, **(Sarker M et al., 2010)** revealed that the subjects performed local abdominal examination. Regarding to auscultation, about more than four fifth of them did not do it. This finding contradicts with the result of **(Mekonnen N et al., 2017)** who found that the auscultation of the fetal heart was done. This can be due to the vast majority of the subjects who answered incorrect answer for local abdominal examination.

Nurses' compliance with ANC visit guidelines during investigations and detection of high risk pregnancy: revealed that the findings of the current study showed that most of the studied nurses complied with urine and blood analysis completely. This result is in harmony with the results of **(Libingi LM, Ngoma CM & Banda Y, 2019)** who reported that more than three quarters of the subjects checked for urine analysis. Also, **(ChweyaA R, 2018)** reported that only less than two thirds of the subjects checked for hemoglobin level and urine analysis. While two thirds of them checked blood for grouping. As well, **(Amoakoh-Coleman M et al., 2016)** reported that the vast majority of the subjects checked for hemoglobin level and urine analysis at first visit. On the contrary, **(Mekonnen N et al., 2017; Horner V, 2014; Sarker M et al., 2010)** revealed that hemoglobin level, blood grouping and urine tests were totally not performed for the study subjects. The current study also showed that less than three quarters of the study subjects did not provide information about high risk pregnancy. This result is not similar to the finding of **(Simbar M et al., 2012)** who revealed that less than half of the subjects were high-risk scored poorly. The findings of the current study indicated that more than half of the study subjects did not provide information about warning signs. This result is consistent with the findings of **(Chweya A R, 2018)** who reported that only half of the subjects did not provide information about warning signs. In the same context**(Conrad P et al., 2012)** who revealed that only 7% and 2 %of women received information on warning signs in Iganga and Nouna, respectively. Also, the findings of **(Elkhalifa A E &Kuppuswamy S B, 2014)** revealed that most of the subjects did not provide information about warning signs. On the other hand, **(Conrad P et al., 2012)** contradict with the result of the present study. It revealed that more than two thirds of the subjects provide information about warning signs in Rufiji. As well, **(Sarker M et al., 2010)** who found that less than two thirds of the subjects provide information about warning signs. As regard to nurse's role during return visit & health teaching: findings of the current study indicated that more than two thirds provided completely health teaching. This finding is in harmony with the study which is previously mentioned by **(Libingi LM, Ngoma CM & Banda Y, 2019)** who reported that less than three quarters of the subjects correctly mentioned the health education messages routinely offered during ANC. This result is on the

contrary with the finding of**(Chweya A R, 2018)** who reported that less than two thirds of the subjects did not provide health teaching. Moreover, the findings of the current study showed that less than three quarters of the study nurses were complying with initial antenatal visit guidelines in ANC clinics. This finding is in agreement with the finding of the study that is previously mentioned by **(Gusti T E, Tamtomo D & Murti B, 2018)** who reported that less than two thirds of the subjects showed well performance. This finding is in agreed with the finding of **(Chweya A R, 2018)** who reported that three quarters of the subjects were fairly complying with FANC. Also**, (Sarker M et al., 2010&Beeckman k et al., 2017)** reported that the subjects complied with ANC guidelines. Furthermore, **(Amoakoh-Coleman M et al., 2016)**who indicated that the subjects were fair complying with initial antenatal visit. In addition to the finding of **(Farokhi F & Khadivzadeh T, 2008)** who indicated that less than three quarters of the subjects showed moderate performance. This finding contradicts with the findings of **(Libingi LM, Ngoma CM & Banda Y, 2019)** who reported that less than two thirds of the subjects showed inadequate performance. As well, **(Chaudhary R &Karn B K, 2015)** who reported that more than four fifth of the subjects showed inadequate performance. Also, **(Ekabua J, Ekabua I & Njoku C, 2011)** who showed that: more than half of the subjects did not comply with FANC guidelines.

The study expounds that there is positive significant correlation between the knowledge of maternity nurses about the initial antenatal visit and their compliance with initial antenatal visit guidelines. This finding was in harmony with the finding of **(Mardiyah U L, Herawati Y T &Witcahyo E, 2014)** and also, **(Gusti T E, Tamtomo D & Murti B, 2018)** who found that there is a relationship between subjects' knowledge and their performance. This result is on the contrary with the finding of **(Inyomusi S et al., 2019)** who showed that there is not a relationship between subjects' knowledge and their performance. Hence, the findings of the current study could be attributed to the fact that some factors could inhibit maternity nurses' compliance with initial antenatal visit guidelines such as inadequate staff training, shortage of staff in some antenatal clinics beside limit role of the nurses in which it is only allowed to the physicians only to perform some procedures that are related to the nurse this is according to the policy of some hospitals for example at the time of conducting the study in some antenatal clinics the nurses did not allow to perform local examination that was performed by physicians only. This result isin agreement with the finding of **(Ismail N I & Essa R M, 2017)** who found that the subjects suffer from shortage of staff and high workload.

5. CONCLUSION

In all study setting more than half of nurses obtained fair total score of knowledge about the care of pregnant women during the initial antenatal visit, while less than three quarters of the studied nurses were fairly compliant with initial antenatal visit in ANC clinics. This proved that there was a statistically positive significant relation between nurses' knowledge and their compliance with guidelines for initial antenatal visit.

6. RECOMMENDATIONS

- The nursing curriculum should be revised & update to include guidelines about initial ANC visit.
- Ministry of Health should provide nurses with hand out guidelines to improve maternal & fetal health.
- Periodic participation of nurses in training programs about ANC to improve their knowledge, skills and ensuring from their compliance with guidelines for initial antenatal visit.
- Promote the use of the evidence to improve antenatal care guidelines.
- Providing ANC guidelines for nurses based on hospitals protocol.
- Reinforce regular supervision of nurses in the antenatal clinics to ensure that they compliance with initial antenatal guidelines.

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