

Effectiveness of Antenatal Educational Guidelines on Maternity Nurse's Performance

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Abstract

Antenatal care is a detailed, systematic examination and follow-up of pregnant female that includes education, counseling, monitoring and therapy to address and treat minor issues and provide appropriate screening during pregnancy. **Aim of the study:** Evaluate Antenatal education guidelines' effectiveness on maternity nurses' performance (Knowledge and Practice). **Design:** A quasi-experimental design (pre-test-post-test). **Setting:** study was conducted in obstetric skill lab of faculty of nursing, Benha university. **Sample:** A purposive sample was used to recruit 140 maternity nurses from Maternal and child health centers at kalioubia governorate. **Tools:** two data collection tools: A self-administered questionnaire sheet and an observational practice checklist. **Results:** Highly statistically significant improvement in maternity nurse's knowledge score, it changed from 51.4% to 85% at post-intervention. Maternity nurses' practice mean score was satisfactory improved, as the mean score increased from 56.4% to 82.1% at the post-intervention phase. Highly positive correlation between total nurse's knowledge and practice score regarding antenatal care was found. **Conclusion:** Provision of antenatal educational guidelines helped strengthen the awareness and practice of maternity nurses on the various aspects of the antenatal period. **Recommendations:** The care of pregnant women should be an integral part of the educational curriculum for nursing students.

Keywords: Antenatal care, Educational guidelines, maternity Nurses' performance, pregnant women, Misconceptions.

Introduction

The antenatal period is considered one of the most stressful events in every woman's life. It is often associated with some complications and diseases that may threaten the mother and baby's life. Hence, antenatal care is very important to ensure a healthy baby's delivery from a healthy mother and reduce maternal and fetal morbidity and mortality (1).

The key aim of antenatal care is to reduce child and maternal mortality rates. (ANC) is pregnant

women's support for safe pregnancy and healthy infants. ANC is essential to healthy motherhood, but its use varies widely. ANC is potentially one of the most successful health strategies to prevent maternal morbidity and mortality, especially where women's overall health status is low⁽²⁾. Education is an essential component of prenatal care, particularly in the 1st time pregnancy⁽³⁾.

Regular interaction during pregnancy with nurses or midwives enables women to access services vital to women's health. In order to minimize perinatal mortality and improve the experience of women in treatment, the World Health Organization (WHO) recommends a minimum of eight antenatal care contacts. However, important measures can be given at prescribed intervals over four visits, at least for

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healthy women without any underlying health issues (4).

Preventing unwanted pregnancy outcomes depends on an organizational continuum of service before and during pregnancy, childbirth, and the postnatal period, with affordable, high-quality care. It also relies on the assistance available to help pregnant women access facilities, particularly when complications arise. The reliable ANC is an essential element in this continuum of treatment. The purpose of the ANC plan is to prepare for birth and parenthood and to avoid, recognize, mitigate or treat the three forms of pregnancy health problems that affect mothers and babies (5).

In the advancement of reproductive health, maternal health services have a potentially important role. The use of health care is related to availability, efficiency, cost of services, social structures, health values, and personal characteristics. Every year, over half a million women die from pregnancy or childbirth complications. Most maternal deaths occur during childbirth, and these numbers could be significantly decreased by the involvement of skilled medical professionals (6).

behaviors related to the health of their patients, the awareness and practices of health professionals, especially maternity nurses, have an important role. During pregnancy, this effect can be much greater since there is regular interaction between women and health providers during periodic prenatal visits. These professionals will serve as health promoters when educated, assisted, and inspired (7).

Nurses play a major role in helping the pregnant woman to achieve the goal of optimal health through ongoing assessment and education so, Awareness and qualification of the practitioners participating in the care process must be raised, so that the requisite technical and scientific information is coupled with

the dedication to a satisfactory health care outcome (8).

Significance of the study:

There is no more tragic situation as a mother loses her life when she gives life to her baby. Millions of women in developing countries are unable to receive antenatal care for a variety of factors. This results in increased maternal and newborn mortality and morbidity rate. The world health organization estimated that 4.3 million fetal deaths occur before or during delivery due to poorly managed pregnancies and delivery (9).

There is exceptionally high maternal mortality. In 2017, nearly 295 000 women died during and after pregnancy and childbirth. In low-resource environments, the vast majority of these deaths (94 percent) occurred, and most could have been avoided. Approximately 86 percent (254 000) of the reported global maternal deaths in 2017 were in Sub-Saharan Africa and Southern Asia. Sub-Saharan Africa alone accounted for about two-thirds (196 000) of maternal deaths, whereas approximately one-fifth (196 000) of maternal deaths were in Southern Asia (58 000) (9).

The maternal mortality rate in Upper Egypt is higher than in Lower Egypt (74-61 percent), according to the Egyptian Ministry of Health. In addition, post-partum hemorrhage (19.7 percent) is the most common cause of maternal mortality in Egypt, while cardiovascular disease (16 percent) is the most common indirect cause (1400 women and 50 percent of their newborns die each year in Egypt due to complications of pregnancy and childbirth). MMR is still high in Egypt according to global standards, so more efforts should be made. (10).

The available Egyptian research that measures the satisfaction of women with prenatal care obtained from primary health care centers of various aspects of standard of care reported that sixty percent of mothers were very low or low satisfied with the data they

received during prenatal care (11).

Current study was carried out to evaluate maternity nurses' knowledge and practices regarding antenatal care, design, implement and evaluate guidelines focusing on pregnant women's health promotion.

Aims of the Study

The present study aimed to evaluate the effectiveness of antenatal education guidelines on maternity nurse's performance (Knowledge and Attitude) through:-

- Assessing nurses' knowledge and practice about antenatal care.
- Designing and implementing an educational guideline for nurses to improve their knowledge and practice regarding antenatal care.
- Evaluating the effect of an educational guideline on maternity nurse's knowledge and practice of antenatal nursing care.

Research hypothesis:

Maternity nurses who receive antenatal educational guidelines will exhibit an improvement in their knowledge and practice regarding antenatal care after intervention than before.

Subjects and method:

Design: A quasi-experimental design (pre & post-test) single group. The beginning was in January (2020) to the end of September (2020)

Setting: study was conducted in obstetric skill lab of faculty of nursing, benha university .

Sample: A purposive sample of 140 maternity nurses from 25% of the total 185 maternal and child health centers at kaliouba governorate. They were randomly selected. **Extracted from the research project.**

Tools: two data collection tools were used:

Tool I: Self-administered questionnaire sheet:

After reviewing current and related national and international literature, the researcher constructed this tool. It consisted of two parts:

Part one: Personal and socio-demographic data.

Part two: Assessment of maternity nurses' knowledge regarding pregnant women's antenatal care included three sections.

Section (1): Knowledge about nursing care during antenatal care included five items (the concept of antenatal care, antenatal care objectives, and the principle of antenatal care, first visit procedure, and follow-up appointments).

Section (2): Knowledge about pregnancy included nine items (symptoms of confirmation pregnancy, early signs of pregnancy, investigation required for pregnant women, vaccinations required during pregnancy, minor discomfort and danger signs during pregnancy, the group at risk during pregnancy, physiological and psychological changes during pregnancy).

Section (3): Knowledge about health education during antenatal care included 12 items (health education about the importance of nutrition, essential elements for pregnant women and fetus, exercise, reduce fatigue, sleep, clothes, occupation during pregnancy, sexual relationship, personal hygiene, taking medication, travel during pregnancy and preparation for breastfeeding.)

Scoring: When the answer was completely correct, each item was scored as (2), a score (1) was given when the answer was not completely correct, and a score (0) was given when the answer was incorrect. The overall knowledge score was categorized as follows:

-Inadequate knowledge: < 60% of total knowledge score.

Adequate knowledge: $\geq 60\%$ of total knowledge score.

Tool II: Practice Observational checklist: The researcher designed this tool after reviewing related literature ⁽¹²⁾ to assess the practice of maternity nurses during antenatal care it was included seven sections (history taking, physical, abdominal examination-uterine fundus, auscultation of fetal heart rate, urine analysis, and breast care)

Scoring: Each item was scored as (0) for not done and (1) for done. Then adding up the scores of the items in each procedure and the overall scores gave practice score. Total practice score was classified as the following: -

- Incompetent practice < 75 % of total practice score.

- Competent practice $\geq 75\%$ of total practice score.

Supportive material :-(Arabic Leaflet booklet)

The researcher designed the educational guideline in the Arabic language supported by figures after reviewing related literature. It included two theoretical and four practical parts. The theoretical part, the concept of antenatal care, antenatal care objectives, and the principle of antenatal care, first visit procedure and follow-up appointments, investigation required for pregnant women, discuss pregnancy' signs and symptoms, and minor discomfort of pregnancy. Vaccinations required during pregnancy, minor discomfort and danger signs during pregnancy, group at risk during pregnancy, physiological and psychological changes during pregnancy the basic elements of the requirements of a pregnant woman and fetus while the practical part explained the procedure's nurses need to take care of women during the antenatal period, such as history taking, abdominal

examination, auscultation of fetal heart rate, urine analysis, and breast care and so on.

Tools Validity

By presenting the questionnaire to five maternity nursing experts, the tool validity was tested by face validity and asked them to read it and assess the content in terms of whether it represents the principles intended to test and to decide its readability and consistency in order to achieve a consensus on the best method to be implemented. The required adjustment was done in the form of some questions being added and omitted.

Reliability:

The test-retest was replicated on two occasions on the same sample of maternity nurses and then the findings were compared. The Cronbach alpha coefficient for the knowledge questionnaire was 0.7 and 0.82 for practice.

Pilot study:

After designing instruments, a pilot study was performed on 10 percent of the studied subjects (14) maternity nurses. It was aimed at determining the tools' usability and clarity. It also helped to predict the time required for the forms to be filled in. As no change was done, participants of the pilot study was included in our sample.

Fieldwork: Maternity nurses were recruited and followed-up from the beginning of January (2020) to the end of September (2020), completing nine months. From 9 am to 2 pm, two days weekly, until the previous predetermined sample size, the researchers attended the pre-mentioned study setting. Written permission was obtained from the predetermined institutional authority of health centers prior to conducting the research. After that, the researchers introduced themselves to women and told them of the purpose of this study in order to obtain their

approval and cooperation. Data confidentiality was ensured to gain the trust and confidence of women. The researchers designed and created the various data collection instruments, developed the materials for antenatal educational guidelines, and updated them by maternity nursing and obstetric medicine experts. Data collection included two periods: pre-test and post-test periods; data from pregnant nurses was collected in the pre-test. At the same time, after applying educational guidelines, the researchers initiated the intervention and assessed them immediately. Data collection was carried out in four phases: the assessment phase, the planning phase, the implementation phase and the evaluation phase.

1-Pre-implementation phase (Initial assessment):

A. Interviewing Phase:

This phase encompassed interviewing to collect personal and socio-demographic data and maternity nurses' knowledge regarding antenatal care of pregnant women. It was used two times (pre- post-test). The questionnaire (pre-test) self-administered to each maternity nurse individually. It was directed in simple Arabic language, and answers were recorded immediately. The researchers greeted the maternity nurse, introduced themselves to each maternity nurse included in the study, explained the study's purpose, and explained how to fill the tools accurately after obtaining their acceptance to share in the study. The tools of data collection required approximately (15-25 minutes).

A- Practice observational checklist: It was filled by the researchers using an observational checklist for pregnant women's antenatal care to assess maternity nurses' practice pre implementing educational guidelines. The checklist was used two times (pre – post-test). The maternity nurses were unaware that they were being observed. Each observation sheet was filled immediately while observing the maternity

nurse when performing the procedure. The average time needed to complete each observational checklist took about (30 – 45) minutes.

Planning phase:

The researchers developed the educational guidelines based on the interview sheet results from the pilot study, assessment phase (pre-test) and review the related literature. Identified needs, requirements and weaknesses were translated into educational guidelines' goals and objectives. The educational guidelines' contents were selected based on identified needs about knowledge and practice regarding antenatal care. Different teaching strategies and methods were chosen to fit small group discussion. An objective of the educational guidelines was to improve knowledge and practices for maternity nurses regarding antenatal care.

Implementation phase:

The theoretical and practical parts of educational guidelines were discussed and demonstrated through group discussion sessions. The researchers conduct six sessions (two theoretical sessions, the duration of each session was ranged from 30-45 minutes, including periods of discussion according to nurses' achievement and feedback followed by four practical sessions, and the duration of each session was ranged from 45-60 minutes included) used for each group. Nurses have been split into small groups (10-14 nurses/session). Each group perceived the content of the educational guidelines using the same teaching strategies and handouts. The total number of groups was (10 groups) and the total time for achieving the educational guideline was (6 hours) for each group under the study.

- **First theoretical session:** concerned with introducing the theoretical part of the educational guidelines and provided nurses with general knowledge about pregnancy.

- **Second theoretical session:** started with feedback about the previous session and an introduction to the new session's objective. The researcher then provided nurses with knowledge about nursing care during antenatal care and health education provided during antenatal care. At the end of the session, the researchers allowed nurses to ask questions and provided a discussion period.

- **Third practical session:** It implied the implementation of the practical part of the educational guidelines for all antenatal care cases and concerned with training nurses regarding history taking and physical examination.

- **Fourth practical session:** started with feedback and re-demonstration of the previous session and introducing the new session's objectives. Then the researchers demonstrated the procedure abdominal examination.

- **Fifth practical session:** included re demonstration of previous procedures and demonstration Auscultation of fetal heart rate.

- **Sixth practical session:** included re demonstration of previous procedures and demonstrating auscultation of heart rate and urine analysis for albumin and sugar and breast care.

Evaluation phase:

The educational guideline's effect was assessed using the same format of tools used before implementing the educational guideline tool I theoretical session and tool II practical parts (pre-test). An immediate evaluation was conducted after implementing the educational guidelines to evaluate nurses' knowledge gain and practical skills.

Data Analysis

Data was summarized and analyzed using statistical package for social sciences (SPSS) software, version 20. Frequency distribution for categorical variables was used for their description. means with standard deviations was used for continuous variables description. To measure tool reliability, Cronbach's alpha was used.

Results

Table (1): Distribution of the studied nurses according to socio-demographic characteristics (n=140).

socio-demographic characteristics	no	%
Age		
<25	7	5.0
25-<30	42	30.0
30-<35	30	21.4
35+	61	43.6
Mean \pm SD	38.24 \pm 7.84	
Educational level		
Diploma	16	11.4
Associated degree	40	28.6

Cont... Table (1): Distribution of the studied nurses according to socio-demographic characteristics (n=140).

Bachelor degree	72	51.4
Post graduate	12	8.6
Experience		
<5	5	3.6
5-<10	43	30.7
10+	92	65.7
Mean ±SD	12.57±8.95	
Training program		
Yes	119	85.0
No	21	15.0

Table (1) represented the studied nurses’ socio-demographic characteristics; the results revealed that the women’s mean age was 38.24±7.84. Moreover, 51.4% of the studied nurses had a Bachelor’s degree in nursing. Besides, 65.7% of the nurses had more than ten years of experience, and 15.0% had training programs.

Table (2): Mean score of the studied nurse’s knowledge regarding antenatal care pre and post-application of educational guidelines (n=140).

Total knowledge	Maximum score	Pre Intervention		Post Intervention		Independent t-test	p-value
		Mean	±SD	Mean	±SD		
Nursing care during antenatal visits	5	2.32	1.04	4.15	0.61	5.11	0.000**
Nursing information	9	5.01	2.05	7.42	1.13	8.02	0.000**
Health education regarding antenatal period	12	5.65	1.71	9.61	2.21	10.75	0.000**
Total	26	13.68	4.20	21.31	3.24	15.67	0.000**

Table (2) Mean differences score of total nurse’s knowledge regarding antenatal care pre and post-application of educational guidelines. The results showed that there was a significant improvement between pre, post percentage of nurses’ knowledge.

Table (3): Mean score of the studied nurse's practices regarding antenatal care pre and post-application of educational guidelines (n=140).

Total practices	Maximum score	Pre-intervention		Post-intervention		Independent t test	p-value
		Mean	±SD	Mean	±SD		
History taking	10	5.12	1.21	7.24	2.51	9.31	0.000**
Physical examination	38	15.51	3.15	27.89	7.23	28.12	0.000**
Abdominal examination	10	4.85	1.41	8.71	1.21	7.75	0.000**
Uterine funds	4	2.08	1.20	3.31	0.54	4.67	0.000**
Auscultation of fetal heart rate	12	5.47	1.54	7.21	2.13	5.54	0.000**
Urine analysis	5	0.28	0.24	2.35	0.98	2.15	0.042*
Breast care	16	7.36	2.51	10.54	3.25	10.72	0.000**
Total	85	38.92	7.91	67.65	12.25	13.21	0.000**

Table (3) Mean differences score of total nurse's practice regarding antenatal care pre and post-application of educational guidelines; the results revealed a significant improvement between pre and post percentage of nurses' practice.

Table (4): correlation between total knowledge and total practices among studied nurses pre and post-application of the educational guideline (n=140).

Practices	Knowledge			
	Pre-program		Post-program	
	r	p-value	R	p-value
	0.71	0.005*	0.79	0.236

Table (4) illustrated the correlation between total knowledge and total practices among studied nurses; the results showed a positive correlation between nurses' knowledge and practice pre and post-application of educational guidelines.

Discussion

Pregnancy is a crucial time for promoting good habits and parenting abilities. Strong antenatal care (ANC) integrates the mother and the family of women with the formal health system, improves the likelihood of using a trained birth attendant and leads to good health across the life cycle. Insufficient support during pregnancy breaks a vital connection in the continuum of care and impacts women and infants alike (*WHO*)⁽⁹⁾.

The present study aimed to evaluate the effectiveness of antenatal educational guidelines on maternity nurses' performance (knowledge & practice). The present study results significantly proved the research hypothesis that an educational guideline help improving maternity nurses' knowledge and practice regarding antenatal care.

The current study's findings were discussed in the following four sections: Section I: shows the socio-demographic characteristics. Section II: related to mean score of nurses' knowledge regarding antenatal care of pregnant women. Section III: related to mean score of nurses' practice related to antenatal care of pregnant women, and Section IV: represent the correlation between total knowledge and practice among studied maternity nurses pre and post-application of educational guidelines.

Regarding socio-demographic characteristics, the present study findings revealed that the mean age of study nurses was 38.24 ± 7.84 , and half of them had Bachelor's degrees. More than two-thirds of them had years of experience, more than ten years. The minority of the studied nurses had training programs regarding antenatal care. These findings followed *maria et al.*,⁽⁷⁾ who found that the health professionals' mean age was 39.4 years, with more than ten years of antenatal care experience. On the other hand, these results disagreed with *Ruby et al.*,⁽¹³⁾ who found that most nurses

belonged to the age group 18-32 years. This may be because nurses are full of energy and hyperactivity at a young age, which is always required in such crucial departments.

Additionally, this result disagreed with *Babulal*,⁽¹⁴⁾ who stated that most studied nurses had less than ten years of experience.

Concerning educational level, this result disagrees with *Nasser et al.*,⁽¹⁵⁾ who found that most of participants (two thirds) hold a diploma in midwifery and nursing secondary school graduates

Additionally, regarding the training course, this result agrees with *Lisette*,⁽¹⁶⁾ who reported that nurses were not always given sufficient training during education or after begun clinical work, which increases stress and makes them less efficient in the work.

Moreover, concerning studied nurses' total knowledge about antenatal care of pregnant women at the pre-test, the study revealed that more than half of the studied nurses had inadequate knowledge regarding antenatal care, which improved their knowledge after implementing educational guidelines. This result may be due to the absence of training courses regarding antenatal care among study nurses, the absence of refreshing guidelines related to the concept and objective of antenatal care, and the limited number of nurses who attended the training courses.

Additionally, these results were supported by *Mohamed & Salem*,⁽¹⁷⁾ they suggested that near two-thirds of studied nurses had inadequate and low scores of knowledge related to antenatal care. This may be due to improper knowledge and lack of motivation to update their knowledge.

Moreover, the present study findings elaborated that there were highly statistically significant differences at pre & post-application of educational

guidelines ($p < 0.001$) mean total scores of maternity nurses knowledge was (13.68 ± 4.20 & 21.31 ± 3.24) pre and post-intervention, respectively. These findings were congruent with **Saber**,⁽¹⁸⁾ they reported that there was a statistically significant difference regarding all items of the knowledge before and after implementation of educational guidelines with increased knowledge of nurses after implementation regarding antenatal care during pregnancy ($p < 0.000^{**}$).

In addition to the studied nurses' total knowledge about pregnant women's nursing care at the pre-test, the study revealed that there were highly significant differences of the studied nurses in the nursing care of pregnant women (2.32 ± 1.04 & 4.15 ± 0.61) pre and post-intervention, respectively. These results were in the same line with **Mohamed et al.**,⁽¹⁹⁾ who reported a significant improvement in the nurse's knowledge score about nursing care during pregnancy.

Regarding nurses' knowledge about health education given to women during antenatal care, the present study findings showed a highly significant difference in the mean scores of the studied nurses (5.65 ± 1.71 & 9.61 ± 2.21) pre and post-intervention, respectively. **Lee et al.**⁽²⁰⁾ supported these findings, they found that the women had inadequate awareness of the nutritional guidelines and minimal knowledge obtained from their providers of service. Similarly, as well as time constraints, insufficient knowledge of nutrition and a lack of nutrition preparation have impaired the ability of clinicians to provide adequate nutrition education.

Regarding nurse's total antenatal care practice, the present study findings reported that more than half of nurses had incompetent practice regarding antenatal care. This finding was in line with (**Mohamed et al.**,⁽¹⁹⁾ who stated that about half of the nurses studied had an unsatisfactory pre-program total practice score, which improved to a highly satisfactory post-program total

practice. On the other hand, this result was in contrast with **Gooda et al.**⁽²¹⁾ who reported a significant improvement in nurses' practice regarding antenatal care at the pre-intervention phase.

Concerning the mean total practice score of nurses regarding pregnant women's care, the present study revealed a highly statistically significant difference between pre & post-intervention ($p < 0.001$). The mean total score of maternity nurses' practice was (38.92 ± 7.91 & 67.65 ± 12.25) at pre-post intervention respectively. This result agrees with **Mohamed et al.**,⁽¹⁹⁾ who reported that most of the studied nurses had unsatisfactory total practice score pre-program, which improved to high satisfactory total practice post-program. This result was also consistent with **Elmorsy**⁽¹¹⁾ who reported unsatisfactory practice of most nurses regarding antenatal period pre-application of educational guidelines. Meanwhile, the majority of them had satisfactory practice regarding the antenatal period post-application of the educational guideline. This result could be explained by lack of nurses' knowledge, which reflected in their practice

Regarding the correlation between total scores of maternity knowledge and practices, the present study's finding showed a statistically significant positive correlation between total knowledge and total practice scores pre and post-application of the educational guideline. This result may be because a good level of knowledge positively affects the level of practice.

This result is in the same line with **Gooda et al.**,⁽²¹⁾ who reported a positive, statistically significant relationship between nurses' knowledge and practice and their age and years of experience before and after application of the nursing protocol ($p < 0.001$).

Conclusion

Based on our findings, the research hypothesis is supported, and nurses' performance (knowledge &

practice) shows a significant improvement in post-implementation of educational guidelines regarding antenatal care for maternity nurses compared to pre-implementation. Furthermore, there was a positive correlation between total knowledge and total practice of studied nurses at pre-implementation phases, while there was no correlation between total knowledge and total practice of studied nurses at post-implementation phases.

Recommendations

- The care of pregnant women should be an integral part of the educational curriculum for nursing students.

- Implementing regular training programs for nurses to update their knowledge and practice towards antenatal care.

- Further research:

- Applying health education for all maternity nurses about antenatal care schedules in all Maternal and Child Health Centres (MCH).

- Effect of simulation training on nurses' performance regarding antenatal care.

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Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/ or publication of this article.

Ethics:

Ethical approval was taken from Faculty of Nursing's Ethical Committee, Benha University, this research was conducted. Written and verbal informed consent was taken from the participants before collecting data and participants' privacy and confidentiality were maintained during data collection and publication.

References

- [1] Bhalwar R, Dudeja P, Jindal AK, Health care of the mothers. Textbook of Community Medicine. 2nd edition. 2018: 327. 4. WHO recommendations on antenatal care for a positive pregnancy experience. (2018).
- [2] World Health Organization , Observatory on Antenatal Care. Available from:http://www.who.int/gho/maternal_health/reproductive_health/antenatal_care_text/en/. [Last accessed on Mar 2015].
- [3] Mohammed A Al-Ateeq& Al-Rusaies, Health education during antenatal care: The need for more Published 18 February 2015 Volume7 Pages 239—242.
- [4] UNICEF ,Progress for children: a report card on maternal mortality: Unicef. (2019):
- [5] Rajivet Kumar Gupta, Tajali Nazir Shora, Aruna K. Verma, Rayaz, Knowledge regarding antenatal care services, its utilization, and delivery practices in mothers(aged 15-49 years)in a rural area of North India Jan Tropical Journal of Medical Research 18(2):89 · January 2015 with 1,576 Reads DOI: 10.4103/1119-0388.158401[Downloaded free from <http://www.tjmrjournal.org> on Friday, March 22, 2019, IP: 14.139.226.17.
- [6] Akhtar,M, Knowledge Attitude and Practice Regarding Antenatal Care among Pregnant Women in Rural Area of Lahore Int. J. Soc. Sc. Manage. (2018), Vol. 5, Issue-3: 155-162 DOI: 10.3126/ijssm.v5i3.2060.
- [7] Maria Barreto Malta, Maria Antonieta de Barros Leite Carvalhaes, Monica Yuri Takito, etal., Educational intervention regarding diet and physical activity for pregnant women: changes in knowledge and practices among health professionals.Published online 2016 Jul 20. doi: 10.1186/s12884-016-0957-1

- [8] Garcia estefania Santos Gonçalves Félix Garcia, Marina Bonelli, Aline Neves Oliveira, The Nursing Care Actions Toward the Pregnant women: Challenging the Primary Health Care / As Ações de Enfermagem no Cuidado à Gestante: Um Desafio à Atenção Primária de Saúde Article (PDF Available) · July 2018 with 115 Reads , DOI: 10.9789/2175-5361.2018.v10i3.863-870
- [9] World Health Organization , Trends in maternal mortality: 2000 to 2017: estimates by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division. Geneva. (2019).
- [10] Mahmoud .A, M Omar,A, Women's awareness and perceptions about maternal mortality in rural communities in Assiut and Fayoum Governorates, Egypt ,(2018) | Volume : 15 | Issue : 1 | Page : 21-29.
- [11] Elmorsy. A,S, Effect of an Educational Guideline on Quality of Nursing Care Provided during Antenatal Period. .(2020).
- [12] Natalie, M., Magge, H., Redditt, V., Karamaga, A., Niyonzima, S., Drobac, P., & Hirschhorn, L. R. Nurse mentorship to improve the quality of health care delivery in rural Rwanda. *Nursing Outlook*, (2018). 61(3), 137-144.
- [13] Ruby Angeline Pricilla, Kirubah Vasandhi David, Rajeswari Siva, T. Jeni Christal Vimala, Sajitha Parveen MF Rahman, and Nancy Angeline., Quality of Antenatal Care Provided by Nurse Midwives in an Urban Health Centre with Regard to Low-Risk Antenatal Mothers, *Indian Journal of Community Medicine*, (2019): 42(1): 37-42.
- [14] Babulal Meena., A Study to Assess the Knowledge of Staff Nurses Regarding Antenatal Assessment of Fetal Well Being Working in Mahila Chikitsalaya Sanganeri Gate Jaipur Rajasthan. Department of Medical & Health GOVT. College of Nursing, Jaipur, Rajasthan, India. (2018).
- [15] Nasser I. Abu-El-Noor, Manal El-Shokry, Mona Fareed, Nisreen Abu-Sultan, Kefah Saleh, Areefa S. Alkaseh, Quality of Antenatal Care in Governmental Primary Health Care Centers in the Gaza Strip as perceived by Nurses and Midwives: An Indication for Policy Change(2018), Vol 26, No 2.
- [16] Lisette van der Eem, Elias C. Nyanza, Sandra van Pelt, Pendo Ndaki, Namanya Basinda, Johanne Sundby, Antenatal care and opportunities for quality improvement of service provision in resource limited settings: A mixed methods study, .,(2017).<https://doi.org/10.1371/journal.pone.0188279>
- [17] Mohamed, H., and Salem, N., Effect of Educational Program for Nurses about Pregnancy Induced Hypertension on their Knowledge in Port Said Hospitals. *Med. J. Cairo Univ.*, (2016), Vol. 81, No. 2, March: 179-188..
- [18] Saber, N. M. Effect of Nursing Program on Improving Nurses' Knowledge and Skills Regarding Care of Eclamptic Women. *American Journal of Nursing Research*, (2018),6(6), 430-436.
- [19] Mohamed, H. A., Fayed, M. R., Abd El Meneam, S. O., & El-Sayed, O. M. Effect of Designing and Implementing Nursing Guidelines on Nurses' Performance in Caring Women with Ectopic Pregnancy. *Evidence-Based Nursing Research*, (2019), 1(3), 13-13.
- [20] Lee, A., Newton, M., Radcliffe, J., & Belski, R. Pregnancy nutrition knowledge and experiences of pregnant women and antenatal care clinicians: A mixed methods approach. *Women and Birth*, (2018),31(4), 269-277.
- [21] Gooda, W. K., Ahmed, A. R., Mohamed, S. M., & Mohammed, A. F. Effect of Nursing Care Guideline on Nurses Knowledge and practice about Pregnant Women Suffering from Heart disease. *Egyptian Journal of Health Care*, (2020), 11(3), 163-184.