



بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



**Ministry of Higher Education and scientific Research
Shandi University
Faculty of Graduate student and Scientific Research**

**Effectiveness of education program Regarding antenatal care on
midwives Knowledge and practice at Shandi Locality
2020-2022**

**A thesis submitted for fulfillment of requirement for PHD in
Maternity Of Nursing**

BY

Thuria Edrees Alhassan Fadlalla

M.sc.in nursing (Mother Child Health nursing)

Supervisor

D. Sami Humeda Alnour

Consutant Obs and Gynecology

University Of Shandi

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قال تعالى:

﴿ إِنَّا عَرَضْنَا الْأَمَانَةَ عَلَى السَّمَاوَاتِ وَالْأَرْضِ وَالْجِبَالِ فَأَبَيْنَ أَنْ يَحْمِلْنَهَا وَأَشْفَقْنَ مِنْهَا

وَحَمَلَهَا الْإِنْسَانُ إِنَّهُ كَانَ ظَلُومًا جَهُولًا ﴾

صدق الله العظيم

(الأحزاب : 72)

Dedication

This thesis is dedicated to

My parents

My sisters and brothers

My husband and children

My colleagues

Acknowledgements

Thanks Allah for giving me the power to complete this work. I would like to express my gratitude to my supervisor, Associated Professor **Dr. Sami Hummeda**, for his encouragement, guidance, and support. He helped me immensely in understanding and writing this research. I would also like to express my gratitude to the Faculty of Nursing – Shendi University. I would also like to express my gratitude to the Shendi town health centers and village director. My sincere thanks and gratitude are transferred to all midwives who participated in the research

Table of contents

Title	Page
الآية	I
Dedication	II
Acknowledgements	III
List of contents	IV
List of tables	VI
List of figures	IX
List of Abbreviations	X
Arabic Abstract	XI
English Abstract	XII
Chapter One	
Introduction	1
Justification	3
Objectives	4
Chapter two	
Literature Review	
2.1. Definition of Antenatal Care	5
2.2 Conception	5
2.3 Maternal Physiologic Adaptations	5
2.3.1 Signs and Symptoms of Pregnancy.	5
2.3.2 Changes in Size, Shape, and Position. High levels of Estrogen and Progesterone	6
2.3.3 Uterine Enlargement	7
2.3.4 Change in Blood Vessels	7
2.3.5 Change in Respiratory System during Pregnancy.	9
2.3.6 Appetite During Pregnancy	9
2.3.7 Change in Gastrointestinal System	10
2.3.8 Change in Urinary System	11
2.4 Diagnosis of Pregnancy	12
2.5 Naegele's Rule	16
2.6 Medication during Pregnancy	16
2.7 Health Education	18
2.8 Antenatal Care Visit	18

Chapter Three	
Material and Methodology	
Study Design	20
Study Area	20
Setting	20
Study Period	20
Study Population	20
Sample Size	21
Sampling Criteria	22
Inclusion Criteria	22
Variables	22
Independent variables	22
Dependent Variables	22
Data Collection Tools	22
Development of Data Collection Tools	23
Field Work	24
Statistical Analysis	26
Administrative Design Related to Ethical Consideration	26
Chapter Four	
Results	28
Chapter Five	
Discussion	63
Conclusion	71
Recommendations	72
References	73
Appendices	77

List of tables

No of table	Table	Page
(4.1)	Distribution of midwives according to the health center (n =45)	30
(4.2)	Demographic characteristics of the 45 midwives from nine health center.	30
(4.3)	Details of studied group according to experience (n=45)	31
(4.4)	Distribution of participants Knowledge regarding general information about prenatal care and pregnancy	32
(4.5)	Distribution of knowledge score for participant regarding the signs and physiological change during pregnancy(N=45)	33
(4.6)	Distribution of knowledge score for participants regarding calculated the period of pregnancy and number antenatal visit (N=45)	33
(4.7)	Distribution of knowledge score for participants regarding investigation that are used to test for pregnancy (N=45)	34
(4.8)	Distribution of knowledge score for participants regarding giving medication during pregnancy	34
(4.9)	Showing Distribution of knowledge score for participants regarding administration vaccinations for women during pregnancy (N=45)	35
(4.10)	Showing participants of knowledge score regarding number of normal fetal movement and fetal heart rate during during pregnancy (N=45)	36
(4.11)	Distribution of knowledge score for participants regarding essential nutrients and natural increase body weight for women during pregnancy (N=45)	37
(4.12)	Showing instructions that giving for women during	38

(4.13)	Distribution of knowledge score for participants regarding symptoms that indicate a high-risk pregnancy in the first three months of pregnancy (N=45)	39
(4.14)	Distribution of knowledge score for participants regarding routine procedures that must be followed for a pregnant woman in the first and subsequent visit (N=45)	40
(4.15)	Detailed midwives' knowledge before and after the implementation of the educational program. (n=45)	42
(4.16)	Distribution of practice score for participants regarding reception of pregnant women pre and post program (N=45)	44
(4.17)	Distribution of practice score for participants regarding taking general history from pregnant women pre and post program (N=45)	45
(4.18)	Distribution of practice score for participants regarding application the physical examination for pregnant women pre and post program (N=45)	46
(4.19)	Distribution of practice score for participants regarding routine laboratories check-up for pregnant women pre and post program (N=45)	48
(4.20)	Distribution of midwives 'practice score regarding providing health education for pregnant women pre and post program (N=45)	49
(4.21)	Showing distribution of practice score of the participants pre and post	50

Table of Figures

No of figure	Figure	Page
(4.1)	Routine procedures that must be followed to test the blood for a pregnant woman during pregnancy	41
(4.2)	Overall score grade of midwives' knowledge before the educational program versus after the program in Shendi centers and villages (n=45) – 2022	44
(4.3)	Distribution of practice score of the participants pre and post	51

List of Abbreviations

Abbreviations	Full name
ANC	Antenatal Care
WHO	World Health Organization
PCO	Pressure of Carbon Dioxide
NVP	Nausea and Vomiting of Pregnancy
HCG	Human Chorionic Gonadotropin
GFR	Glomerular Filtration Rate
LMP	Last Menstrual Period date
EDB	Estimated Date of Birth
EDD	Estimated Date of Delivery
CA	Correct answer
WA	Wrong answer
IFA	Iron Folic Acid
GWG	Gestational Weight Gain

الملخص

الخلفية: تلعب القابلات دوراً محورياً في مساعدة النساء الحوامل في المراكز الصحية الأهداف: دراسة مدى فعالية البرنامج التعليمي فيما يتعلق بالرعاية السابقة للولادة على معرفة وممارسة القابلات في بلدة شندي ومراكز القرية.

الطرق:

اجريت هذه الدراسة في سبعة عشر مركز صحي في الفترة ما بين 2020-2022 وكانت عينة الدراسة 45 قابلة اللاتي يعملن على تقديم الرعاية للحوامل بالمراكز الصحيةتم التنفيذ من خلال برنامج تعليمي وتدريبى .وقياس اثر البرنامج التعليمي التدريبي وتم جمع البيانات عن طريق الاستبيان والمقابلة الشخصية قبل وبعد التدخل ومن ثم تطبيق البرنامج التدريبي لمدة تسعة اشهر وبعدها تم جمع البيانات مرة أخرى باستخدام نفس الوسائل السابقة بغرض التأكد من ثبات المعلومات والمهارات المكتسبة وتم تحليل البيانات باستخدام برنامج التحليل الحزمي للبيانات الحاسوبية بالحاسوب وتوصلت الي عدة نتائج تم جمع بيانات الدراسة عن طريق الاستبيان وقائمة المراجعة الرقابية وتم تحليلها (SPSS v16) بواسطة الإحصاءحزمة العلوم الاجتماعية

معرفة القابلات قبل تنفيذ البرنامج النتائج:- بلغ إجمالي عدد القابلات المشاركات (45) كان متوسط ضعيفاً (55%) مقابل (95%) في الاختبار اللاحق. بينما كان عادلة (ن = 14 ، 32.15%) في الاختبار التمهيدي فيما يتعلق بممارسة القابلات المتوسطة قبل التنفيذ مقابل (ن = 1.5 ، 3.4%) في الاختبار اللاحق.

الخلاصة: خلصت الدراسة إلى أن هناك تحسناً ملحوظاً في معرفة ومهارات القابلات العاملات في المراكز الصحية لرعاية الحوامل.

Abstract

Background: The midwives play a pivotal role in assisting the pregnant women at health centers.

Aims: To study The Effectiveness of the Educational Program regarding antenatal care on midwives' knowledge and practice at Shendi town and village centers

Methods: This is a pre/ post interventional study carried out during the period 2022 to 2020. The educational program was implemented at the 17 health centers, the duration of the program was nine months (4 credit hours and 132 contact hours) for each participant; to measure the effect of the program, the participants' knowledge and practice were assessed after the nine months of the educational program. Study data was collected by questionnaire and an observational checklist. The data was analyzed by the Statistical Package for Social Sciences (SPSS v 16).

Results: The total number of participating midwives was (45). The mean midwives' knowledge before implementation of the program was poor (55%) versus (95%) in post-test. While had fair (n= 14, 32.15%) in pre-test regarding the mean midwives' practice before implementation versus (n= 1.5, 3.4%) in post-test.

Conclusion: The study concluded that there is a significant improvement in the knowledge and skills of the midwives who work in antenatal health centers.

2INTRODUCTION

Antenatal care (ANC) is a type of preventive health care and regular check-up provided by skilled healthcare professionals to pregnant women to ensure the best health conditions for both mother and baby during pregnancy ⁽¹⁾.

ANC includes risk identification and screening, diagnosis, prevention and management of pregnancy-related or concurrent diseases, and health education and promotion ⁽²⁾.

World health organization (WHO) in 2022 gave an estimation of about 287 000 women globally died from a maternal cause, equivalent to almost 800 maternal deaths every day, and approximately one every two minutes. This is more than a third lower than in 2000 when there were an estimated 446 000 maternal deaths. ⁽³⁾.

in 2020, sub-Saharan Africa was the only region with a very high maternal mortality ratio , estimated at 545 maternal deaths per 100 000 live births. This is 136 times higher than the MMR in Australia and New Zealand where MMR was lowest. From lowest to highest, the regions of Europe and Northern America (13), Eastern and South-Eastern Asia (74), Northern Africa and Western Asia (84), and Latin America and the Caribbean (88) all had low MMRs (below 100) in 2020. Sub-Saharan Africa alone accounted for approximately 70% of global maternal deaths in 2020, followed by Central and Southern Asia which accounted for almost 17%. ⁽³⁾.

The United Nations Population Fund in Sudan has been working towards the reduction of maternal and child morbidity and mortality, raising awareness within communities about reproductive health and gender-based violence. Sudan has a high maternal mortality rate of 295 deaths per 100,000 live births, according to the UNFPA 2020 State of World Population report, while the world average is 211 deaths. Almost one-quarter of births in Sudan are not attended by skilled health personnel. ⁽⁴⁾

antenatal care is an important part of maternity care.it is also meant to provide support to parents and families with a formal health system antenatal care. ⁽⁵⁾ (ANC) is one of evidence based interventions to decrease the probability of bad health outcomes for mothers and their new borns. In adequate care during this period breaks a critical link in the continuum of care and effects both women and babes. ⁽⁶⁾

Midwives with their good performance provide a crucial stage of ANC through history-taking, counseling, communication with risk women groups during pregnancy determining any social and medical risks to the woman and her baby. Midwives also responsible for motivating pregnant women to make healthy choices as described in maternity health. ⁽⁷⁾

Justification of study

The World Health Organization (WHO) envisions a world where every pregnant woman and newborn receive quality care throughout the pregnancy, ANC has highlighted the importance of providing effective communication about physiological, biomedical, behavioral and sociocultural issues, and effective support, including social, cultural, emotional and psychological support, to pregnant women in a respectful way.⁽⁸⁾

The midwives have great roles in antenatal care, so that midwives' knowledge and practices should be improved through continuous training and clinical skills development regarding utilization of antenatal care standard to improve pregnancy outcome ⁽⁹⁾. This study aims to improve midwives' knowledge and practice regarding antenatal care.

Objectives of study

General aim:

To study the effectiveness of educational Program Regarding antenatal care on midwives' knowledge and practice at Shendi town and village centers

Specific Aim:

- 1 -To assess the level of pre intervention knowledge and practice for midwives regarding antenatal care in centers of Shandi town and villages
- 2- To assess the level of post intervention knowledge and practice for midwives regarding antenatal care in centers of Shandi town and villages

HYPOTHESES

H_1 The mean knowledge and practices of midwives about antenatal care, post - test will be more high than pretest.

H_0 The mean knowledge and practices of midwives about antenatal care, post - test will be the same as the pretest.

Literature review

2.1 Definition:

Antenatal care can be broadly defined as encompassing pregnancy-related services provided between conception and the onset of labor with the aim of treatment and reduce the health problem to obtain advanced lifestyle for women and their infants. ⁽¹⁰⁾ Maternal care during pregnancy aims to preserve the health of the mother during pregnancy to reduce high-risk conditions, to prevent and minimize the development of complications. Counseling about symptoms associated with pregnancy; preparing the mother for childbirth and teaching the mother about baby care and nutrition ⁽¹¹⁾

2.2 Conception:-

defined as the union of a single egg and sperm, marks the beginning of a pregnancy. Conception occurs not as an isolated event but as part of a sequential process, which includes gamete (egg and sperm) formation, ovulation (release the egg), fertilization (union of the gametes), and implantation in the uterus. An explanation of cell division by mitosis and meiosis precedes discussion of gametogenesis. ⁽¹²⁾

2.3 Maternal physiologic adaptations during pregnancy :-

are attributed to the hormones of pregnancy and to mechanical pressures arising from the enlarging uterus and other tissues. These adaptations protect the woman's normal physiologic functioning, meet the metabolic demands that pregnancy imposes on her body, and provide a nurturing environment for fetal development and growth. Although pregnancy is a normal phenomenon, problems can occur.

2.3.1 Some physiologic adaptations :-

are recognized as the signs and symptoms of pregnancy. Three commonly used categories of these signs and symptoms are:

- Presumptive—those changes felt by the woman (e.g., amenorrhea, fatigue, breast changes)

- Probable—those changes observed by an examiner (e.g., Hegar sign, ballottement, pregnancy tests)
- Positive—those signs attributed only to the presence of the fetus (e.g., hearing fetal heart tones, visualizing the fetus, palpating fetal movements)

2.3.2 Changes in Size during pregnancy:-

Shape, and Position. High levels of estrogen and progesterone stimulate phenomenal uterine growth in the first trimester. Early uterine enlargement results from increased vascularity and dilation of blood vessels, hyperplasia (production of new muscle fibers and fibroelastic tissue) and hypertrophy (enlargement of preexisting muscle fibers and fibroblastic tissue), and development of the decidua.

By 7 weeks of gestation, the uterus is the size of a large hen's egg; by 10 weeks, it is the size of an orange (twice its nonpregnant size); and by 12 weeks, it is the size of a grapefruit. After the third month, uterine enlargement is primarily the result of mechanical pressure of the growing fetus. As the uterus enlarges it also changes in shape and position. At conception the uterus is shaped like an upside-down pear. During the second trimester, as the muscular walls strengthen and become more elastic, the uterus becomes spherical or globular. Later, as the fetus lengthens, the uterus becomes larger and more ovoid and rises out of the pelvis into the abdominal cavity. The pregnancy may "show" after the fourteenth week, although this depends to some degree on the woman's height and weight. Abdominal enlargement may be less apparent in the nullipara with good abdominal muscle tone. Posture also influences the type and degree of abdominal enlargement that occurs. In normal pregnancies the uterus enlarges at a predictable rate. As the uterus grows it can be palpated above the symphysis pubis sometime between the twelfth and fourteenth weeks of pregnancy. The uterus rises gradually to the level of the umbilicus at 22 to 24 weeks of gestation and nearly reaches the xiphoid process at term. Between weeks 38 and 40, fundal height decreases as the fetus begins to descend into the pelvis (lightening) in preparation for birth.

.Generally lightening occurs in the nullipara about 2 weeks before the onset of labor and in the multipara at the start of labor.

2.3.3 Uterine enlargement :-

is determined by measuring fundal height. This measurement is commonly used to estimate the weeks of gestation. However, variations in the position of the fundus or the fetus, variations in the amount of amniotic fluid present, the presence of more than one fetus, maternal obesity, and differences in examiner technique can reduce the accuracy of this estimation. Generally the uterus rotates to the right as it enlarges and rises in the abdomen, probably because of the presence of the rectosigmoid colon on the left side. However, the extensive hypertrophy (enlargement) of the round ligaments keeps the uterus in the midline. Eventually the growing uterus touches the anterior abdominal wall and displaces the intestines to either side of the abdomen. When a pregnant woman is standing, most of her uterus rests against the anterior abdominal wall and contributes to altering her center of gravity.

2.3.4 changes on the blood vessels during pregnancy :-

are caused by the expansion of the systemic blood vessels. Thus the renin-angiotensin-aldosterone system when activated increases blood volume during pregnancy due to high plasma volume. Volume is maintained to increase circulation volume to restore relative vascular deficiency. To a lesser degree, the volume of red blood cells increases.⁽¹³⁾ leading to the condition known as physiologic anemia of pregnancy . Because of this hematologic adaptation, pregnant women are diagnosed with anemia only when the hematocrit falls below 33% ⁽¹⁴⁾.

During pregnancy there is a 10- to 20-fold increase in folate requirements and a two-fold increase in vitamin B12 requirements, and two- to three-fold increase in the requirement for iron, not only for hemoglobin synthesis but also for the fetus and the production of certain enzymes. There is a change in clotting factors during pregnancy, higher concentrations clotting factors particularly VIII, IX, and X. Fibrinogen levels increase by up to 50%, while

fibrinolytic activity decreases and Endogenous anticoagulants ⁽¹⁵⁾. during pregnancy there is 15% increase in the metabolic rate and a 20% increased consumption of oxygen, there is a 40–50% increase in minute ventilation, mostly due to an increase in tidal volume, rather than in the respiratory rate this led to a significant increase in oxygen demand during normal pregnancy ⁽¹⁶⁾.

Blood Pressure. Arterial blood pressure (brachial artery) varies with age, activity level, presence of health problems, circadian rhythm, use of alcohol, smoking, and pain. Additional factors to consider during pregnancy include maternal position and type of blood pressure apparatus. Maternal anxiety can elevate readings. If an elevated reading is found, the woman is given time to rest and the reading is repeated. Maternal position affects readings. Brachial blood pressure is highest when the woman is sitting; lowest when she is lying in the lateral recumbent position; and intermediate when she is supine, except for some women who experience hypotensive syndrome therefore, at each prenatal visit the reading should be obtained in the same arm and with the woman in a seated position with her back and arm supported and her upper arm at the level of the right atrium. The position and arm used should be recorded along with the reading ⁽¹²⁾.

Respiratory System The major respiratory changes in pregnancy are the result of three factors: increased oxygen consumption, hormonal factors, and the physical effects of the enlarging uterus, oxygen Consumption Oxygen consumption rises by 20% in pregnancy. Half the increase is used by the uterus, the fetus, and the placenta, 30% by the heart and Kidneys, and the rest by the respiratory muscles and breast tissues

The tidal volume (the volume of gas moved into or out of the respiratory tract with each breath) increases by 30% to 40%. Although residual volume decreases by 20%, total lung capacity decreases by only 4%. To compensate for the increased need, progesterone causes the woman to hyperventilate slightly by breathing more deeply, although her respiratory rate remains unchanged. The partial pressure of carbon dioxide (PCO_2) decreases. Increased excretion of hydrogen ions from the kidneys partially compensates for the

resulting mild respiratory alkalosis. The hyperventilation and respiratory alkalosis facilitates transfer of carbon dioxide from the fetus to the mother ⁽¹⁷⁾.

2.3.5 Hormones changes during pregnancy:-

Progesterone is considered a major factor in the respiratory changes of pregnancy. Progesterone, along with prostaglandins, helps decrease airway resistance by up to 50% by relaxing the smooth muscle in the respiratory tract. Progesterone is also believed to increase the sensitivity of the respiratory center in the medulla oblongata to carbon dioxide, thus stimulating the increase in minute ventilation. These two factors are responsible for the heightened awareness of the need to breathe experienced by many women during pregnancy. Estrogen causes increased vascularity of the mucous membranes of the upper respiratory tract. As the capillaries become engorged, edema and hyperemia develop within the nose, pharynx, larynx, and trachea. This congestion may cause nasal and sinus stuffiness, epistaxis (nosebleed), and deepening of the voice. Increased vascularity also causes edema of the eardrum and Eustachian tubes and may result in a sense of fullness in the ears. ⁽¹⁷⁾.

2. Nutrition disorder during pregnancy:-

A woman's appetite and food intake fluctuate. Early in pregnancy some women have nausea with or without vomiting ("morning sickness"), possibly in response to increasing levels of HCG and altered carbohydrate metabolism. Nausea and vomiting of pregnancy (NVP) appears at about 4 to 6 weeks of gestation and usually subsides by the end of the third month (first trimester) of pregnancy. Severity varies from mild distaste for certain foods to more severe vomiting. The condition can be triggered by the sight or odor of various foods. By the end of the second trimester the appetite increases in response to increasing metabolic needs. Rarely does NVP have harmful effects on the embryo, the fetus, or the woman. Whenever the vomiting is severe or persists beyond the first trimester or when it is accompanied by fever, pain, or weight loss, further evaluation is necessary and medical intervention is likely.

Women can have changes in their sense of taste, leading to cravings and changes in dietary intake. Some women have nonfood cravings (pica) such as for ice, clay, and laundry starch. Pica should be considered as a potential factor in cases of iron deficiency or poor weight gain. ⁽¹²⁾

2.3.7 Effect of pregnancy hormone on body:-

Elevated levels of estrogen cause hyperemia of the tissues of the mouth and gums and may lead to gingivitis and bleeding gums. Some women develop a highly vascular hypertrophy of the gums, called epulis. The condition regresses spontaneously after childbirth. Although the amount of saliva does not usually change, some women experience ptyalism, or excessive salivation. The cause of ptyalism may be decreased swallowing, associated with nausea or stimulation of the salivary glands by the ingestion of starch. Small, frequent meals and use of chewing gum and oral lozenges offer limited relief to some women.

The lower esophageal sphincter tone decreases during pregnancy, primarily because of the relaxant activity of progesterone on the smooth muscles. These changes, along with upward displacement of the stomach, allow gastroesophageal reflux of acidic stomach contents into the esophagus and produces heartburn (pyrosis).

Elevated levels of progesterone relax all smooth muscle, decreasing tone and motility of the gastrointestinal tract. The effect on emptying time of the stomach is unclear, with some studies showing a decrease and others showing no change during pregnancy. Gastric acidity is decreased during the first two trimesters and increased during the third trimester. The risk for gastric ulcers decreases during pregnancy. Large and Small Intestines. Emptying time of the intestines increases, allowing more time for nutrient absorption. It also may cause bloating and abdominal distention. Calcium, iron, some amino acids, glucose, sodium, and chloride are better absorbed during pregnancy, but absorption of some of the B vitamins is reduced.

Decreased motility in the large intestine allows time for more water to be absorbed, leading to constipation. Constipation may cause or exacerbate hemorrhoids if the expectant mother must strain to have bowel movements. Flatulence also may be a problem.

Although the size of the liver and gallbladder remains unchanged during pregnancy, estrogen and progesterone cause functional changes. The enlarging uterus pushes the liver upward and backward during the last trimester, and liver function is also altered. The serum alkaline phosphatase level rises two to four times that in non pregnant women. Serum albumin and total protein fall, partly because of hemodilution. The gallbladder becomes hypotonic, and emptying time is prolonged. The bile becomes thicker, predisposing to the development of gallstones. Reduced gallbladder tone also leads to a tendency to retain bile salts, which can cause itching (pruritus).

2.3.8 Effect of pregnancy hormone in renal system:-

The woman experiences frequency and urgency of urination throughout her pregnancy. Although uterine expansion within the pelvis is one cause of these urinary changes, frequency begins before the uterus is big enough to exert pressure on the bladder. Hormonal influences, increased blood volume, and changes in renal blood flow and glomerular filtration rate (GFR) may play a significant role in urinary frequency. Stress and urge incontinence begin at any time during pregnancy and continue until after delivery is experienced by 30% to 50% of pregnant women. Although frequency and urgency are normal during pregnancy, they are also signs of infection and, if accompanied by burning sensation or pain, may indicate urinary tract infection. Bladder capacity doubles by term, and the tone is decreased in response to progesterone. Nocturia is common because sodium and water are retained during the day and excreted during the night when the woman is lying down. Pressure from the uterus pushes the base of the bladder forward and upward near the end of pregnancy. The bladder mucosa becomes congested with blood, and the bladder walls become hypertrophied as a result of stimulation

from estrogen. Decreased drainage of blood from the base of the bladder results in edema of its tissues and renders the area susceptible to trauma and infection during childbirth.

Changes in kidneys and ureters Size and Shape. During pregnancy, the kidneys change in both size and shape because of dilation of the renal pelvis, calyces, and ureters above the pelvic brim. The dilation begins during the second month of pregnancy. The ureters become elongated and are compressed between the enlarging uterus and the bony pelvic brim. The flow of urine through the ureters is partially obstructed, causing hydrostatic pressure against the renal pelvis. This occurs especially on the right side because the ureter turns toward the right during pregnancy and crosses the iliac and right ovarian veins. As much as 300 mL of urine may be present in the ureters. The resulting stasis of urine is important because it allows time for bacteria to multiply. The risk for bacteriuria, which may be asymptomatic, is increased, and pyelonephritis results in 30% of these women. Renal plasma flow increases by 50% to 80% during pregnancy. This change results from increases in plasma volume and cardiac output. The flow is highest when the woman is in the left side-lying position. The GFR rises by as much as 50% because of the higher renal blood flow. The increases in renal plasma flow and GFR are necessary for excretion of additional metabolic waste from the mother and the fetus. Glucose excretion increases, and glycosuria, or glucosuria, is common during pregnancy. Small quantities of amino acids, water-soluble vitamins, and electrolytes are also excreted because the filtered load of these substances exceeds the ability of the renal tubules to reabsorb them. Bacteria thrive in urine that is rich in nutrients, increasing the risk for urinary tract infections during pregnancy. Urine output increases throughout pregnancy. Mild proteinuria is common and does not necessarily indicate abnormal kidney function or preeclampsia Protein level may be monitored throughout pregnancy to identify increases that would indicate a problem. Tests of renal function may be misleading during pregnancy. As a result of

increased GFR, serum creatinine and blood urea nitrogen decrease and creatinine clearance levels increase.⁽¹⁶⁾

2.4 Diagnostic confirmation of pregnancy:-

is based on a combination of the presumptive, probable, and positive changes/signs of pregnancy. This information is obtained through history, physical and pelvic examinations, and laboratory and diagnostic studies.

The presumptive signs of pregnancy include all subjective signs of pregnancy (i.e., physiological changes perceived by the woman herself):

- Amenorrhea: Absence of menstruation
- Nausea and vomiting: Common from week 2–12
- Breast changes: Changes begin to appear at 2 to 3 weeks
- Enlargement, tenderness, and tingling of breasts
- Increased vascularity of breasts
- Fatigue: Common during the first trimester
- Urination frequency: Related to pressure of enlarging uterus on bladder; decreases as uterus moves upward and out of pelvis
- Quickening: A woman's first awareness of fetal movement; occurs around 18–20 weeks' gestation in primigravidas (between 14–16 weeks in multigravidas)

All of these changes could have causes outside of pregnancy and are not considered diagnostic. The probable signs of pregnancy are objective signs of pregnancy and include all physiological and anatomical changes that can be perceived by the health care provider:

- Chadwick's sign: Bluish-purple coloration of the vaginal mucosa, cervix, and vulva seen at 6–8 weeks
- Goodell's sign: Softening of the cervix and vagina with increased leukorrheal discharge; palpated at 8 weeks
- Hegar's sign: Softening of the lower uterine segment; palpated at 6 weeks

- Uterine growth and abdominal growth
- Skin hyperpigmentation
- Melasma (chloasma), also referred to as the mask of pregnancy: Brownish pigmentation over the forehead, temples, cheek, and/or upper lip.
- Linea nigra: Dark line that runs from the umbilicus to the pubis.
- Nipples and areola: Become darker; more evident in primigravida and dark-haired women.
- Ballottement: A light tap of the examining finger on the cervix causes fetus to rise in the amniotic fluid and then rebound to its original position; occurs at 16–18 weeks
- Positive pregnancy test results
 - Laboratory tests are based on detection of the presence of human chorionic gonadotropin (HCG) in maternal urine or blood.
 - The tests are extremely accurate, but not 100%. There can be both false-positive and false-negative results. Because of this, a positive pregnancy test is considered a probable rather than a positive sign of pregnancy.
 - A maternal blood pregnancy test can detect HCG levels before a missed period.
 - A urine pregnancy test is best performed using a first morning urine specimen, which has the highest concentration of HCG, and becomes positive about 4 weeks after conception.
 - Home pregnancy tests are also accurate (but not 100%) and are simple to perform. These urine tests use enzymes and rely on a color change when agglutination occurs, indicating a pregnancy. The home tests can be performed at the time of a missed menstrual period or as early as 1 week before a missed period. If a negative result occurs, the instructions suggest that the test be repeated in one week if a menstrual period has not begun.

All of these changes could also have causes other than pregnancy and are not considered diagnostic. The presumptive and probable signs of pregnancy are important components of the assessment in confirming a pregnancy. Early in gestation, before any positive signs of pregnancy, a combination of presumptive and probable signs is used to make a practical diagnosis of pregnancy. The positive signs of pregnancy are the objective signs of pregnancy (noted by the examiner) that can only be attributed to the fetus:

- Auscultation of the fetal heart, by 10–12 weeks' gestation with a Doppler
- Observation and palpation of fetal movement by the examiner after about 20 weeks' gestation
- Sonographic visualization of the fetus: Cardiac movement noted at 4–8 weeks

Ultrasound using a vaginal probe can confirm a pregnancy slightly earlier than with the transabdominal method. With a transvaginal ultrasound the gestational sac is visible by 4.5–5 weeks' gestation and fetal cardiac movement can be observed as early as 4 weeks' gestation. Ultrasound visualization of a pregnancy has increasingly become a routine and expected part of prenatal care. Indications for ultrasound examination of an early pregnancy for purposes of diagnosis include:

- Pelvic pain or vaginal bleeding in the first trimester
- History of repeated pregnancy loss or ectopic pregnancy (the implantation of a fertilized ovum outside the uterus)
- Uncertain menstrual history
- Discrepancy between actual size and expected size of

Pregnancy based on history

The antepartum (antepartal) period, also referred to as the prenatal period, begins with the first day of the last normal menstrual period (LMP) and ends with the onset of labor (known as the intrapartal period).

Pregnancy is also counted in terms of trimesters, each roughly 3 months in length: Trimesters

- First trimester: First day of LMP through 14 completed weeks
- Second trimester: 15 weeks through 28 completed weeks
- Third trimester: 29 weeks through 40 completed weeks

Calculation of Due Date

- An important piece of information to share with a newly pregnant woman and her family is her “due date” or estimated date of birth (EDB). It is more commonly known now as estimated date of delivery (EDD). This date represents a best estimation as to when a full-term infant will be born. The original term used for this date was the estimated date of confinement (EDC). Calculation of the EDD is best accomplished with a
 - known and certain last menstrual period date (LMP). Other tools are used to determine the most accurate EDD possible if the LMP is not known and are used throughout the pregnancy to confirm EDD based on an LMP. These tools are:
 - Physical examination to determine uterine size
 - First auscultation of fetal heart rate with a Doppler and/or a fetoscope (stethoscope for auscultation of fetal heart tones)

Date of quickening

- Ultrasound examination
- History of assisted reproduction

2.5 Naegele’s rule:-

is the standard formula for determining an EDD based on the LMP. The formula is: First day of LMP – 3 months + 7 days. It is important to remember that the EDD as determined by Naegele’s rule is only a best guess of when a baby is likely to be born. Two factors influence the accuracy of Naegele’s rule

- Regularity of a woman’s menstrual cycles
- Length of a woman’s menstrual cycles

- Results may not be accurate if menstrual cycles are not regular or are greater than 28 days apart.⁽¹⁸⁾

2.6 medication during pregnancy:-

Folic acid supplementation prevents first and second time occurrence of neural tube defects. In Australia, the rates of anomalies such as encephalocele, anencephaly and spina bifida have fallen with promotion of folic acid supplements and voluntary fortification . However, no such falls have been seen for Aboriginal babies and the prevalence of neural tube defects among Aboriginal and Torres Strait Islander babies is almost double that in the non-Indigenous population. Levels of knowledge about folic acid supplementation appear to be lower among Aboriginal and Torres Strait Islander women, particularly among adolescent women . Restricted food choices and higher costs in rural and remote areas may also contribute to lower levels of folate intake and higher prevalence of neural tube defects.

Women taking medicines that are folate antagonists (eg carbamazepine, lamotrigine) should be encouraged to take high-dose folate supplements preconception and during the first trimester. dietary supplementation with folic acid, from 12 weeks before conception and throughout the first 12 weeks of pregnancy, reduces the risk of having a baby with a neural tube defect and recommend a dose of 500 micrograms per day.

There is insufficient evidence about the effects of other combinations of vitamins on pregnancy outcomes .Vitamins A, C or E supplements is not of benefit in pregnancy and may cause harm.

Iodine increased thyroid activity during pregnancy increases iodine requirements. If iodine intake is inadequate before pregnancy, maternal stores may run low and be inadequate to support the unborn baby in later stages of pregnancy. Iodine deficiency is of particular concern during pregnancy because abnormal function of the mother's thyroid has a negative impact on

the nervous system of the unborn baby, and increases the risk of infant mortality. Adverse effects on early brain and nervous system development are generally irreversible and can have serious implications for mental capacity in later life.

Demand for iron increases during pregnancy and insufficient iron intake or absorption or blood loss (eg due to gastrointestinal parasites) can result in deficiency or anemia.

There is a lack of evidence that, in otherwise healthy women, the benefits of treatments for mild iron-deficiency anemia in pregnancy will outweigh the adverse effects associated with them. There is a potential dose response relationship between dose of iron and reported adverse events.

Daily supplementation with iron during pregnancy reduces the risk of maternal iron deficiency and anemia and low birth weight but is associated with side effects (constipation, nausea, vomiting and diarrhea and an increased risk of high hemoglobin concentration at term). These effects need to be weighed against the risks of iron deficiency. Intermittent iron +folic acid regimens produce similar maternal and infant outcomes at birth and are associated with fewer side effects.

Iron-rich staple foods can help women reach dietary targets for iron. Absorption is aided by vitamin C and limited by tea and coffee. Where iron-rich foods are not available (eg due to geographical location or socioeconomic factors), women may be at high risk of iron deficiency. Ferritin concentrations should be checked and supplementation considered if iron stores are low or if they are normal but dietary intake is likely to remain low.

Other minerals

- Calcium: While calcium supplements are useful in decreasing pre-eclampsia risk if dietary intake is low, they do not appear to be of benefit in preventing preterm birth or low infant birth weight.
- Magnesium: There is insufficient evidence to show whether dietary magnesium supplementation during pregnancy is beneficial.

- Zinc: While some studies have found benefits from zinc supplementation among women in areas of high perinatal mortality. ⁽¹⁹⁾

2.7 Maternal nutrition guidelines:-

According to the maternal nutrition guidelines for Uganda, the midwives left out other information such as; information on importance of adequate nutrition during pregnancy, weight gain during pregnancy, guidelines for healthy habits, appropriate food preparation methods, avoidance of substance abuse such alcohol, drugs and smoking and nutrition precautions in special circumstances such as chronic diseases and medication ⁽²⁰⁾

2.8 Antenatal care visit:-

A woman's 'contact' with her antenatal care provider should be more than a simple 'visit' but rather the provision of care and support throughout pregnancy. The guideline uses the term 'contact' as it implies an active connection between a pregnant woman and a health care provider that is not implicit with the word 'visit'. The new model increases maternal and fetal assessments to detect complications, improves communication between health providers and pregnant women, and increases the likelihood of positive pregnancy outcomes. It recommends pregnant women to have their first contact in the first 12 weeks' gestation, with subsequent contacts taking place at 20, 26, 30, 34, 36, 38 and 40 weeks' gestation. ⁽²¹⁾

“More and better quality contacts between all women and their health providers throughout pregnancy will facilitate the uptake of preventive measures, timely detection of risks, reduces complications and addresses health inequalities,” says Dr Anthony Costello, Director of Maternal, Newborn, Child and Adolescent Health, WHO. “Antenatal care for first time mothers is key. This will determine how they use antenatal care in future pregnancies.” ⁽²¹⁾

The new guidelines outline what care pregnant women should receive at each of the contacts with the health provider, including counselling on healthy diet and optimal nutrition, physical activity, tobacco and substance use; malaria

and HIV prevention; blood tests and tetanus vaccination; fetal measurements including use of ultrasound; and advice for dealing with common physiological symptoms such as nausea, back pain and constipation ⁽²¹⁾

2.9 Previous studies

In Zambia

Conclusions: Knowledge levels of midwives were high compared to the skills levels. Intensive, onsite, supportive mentorship and supervision is recommended to improve midwives knowledge and skills in antenatal care. ⁽²²⁾

In Denmark

Background :Antenatal care to support and improve maternal health is a core [midwifery](#) activity in which prevention as well as HP and woman-centeredness are important.

Aim :To explore how Danish midwives experienced antenatal care and practiced health promotion. ⁽²³⁾

Material and Methodology

Study design:

Quiz-experimental study design in one group pre and post- test was utilize in current study.

Study area:

The study was carried out at Shendi town which is 176 Km north of Khartoum and 110Km south to Elddamer, Shendi town lies on the eastern bank of The River Nile with a total area about 14596Km the total population of Shendi locality is estimated at about 197589 people of whom 116713 live in rural area and 80876 in urban.

There are two centers in Shendi town caring after pregnant women. The primary health centers in Shendi including many departments such as lab, pharmacy, accountant, medicine and antenatal service. The team works in the antenatal services includes midwives, lab technician, nurse and pharmacist.

Setting:

Shendi consists of two centers for providing service to pregnant women. One is a big center, and the other center is small. The health care provider who provides services is obstetrician, general doctors and midwives. Shendi village centers are divided into two north sectors that include six centers and south sector includes nine centers.

Study period:

It is from January 2020 to December 2022

Study population:

Midwives are most health provider who provides service for pregnant women especially in rural centers, so they should have the awareness in knowledge and practice regarding antenatal care. (Justification)

The total number of midwives in centers of Shendi town and village is (45) .

Sampling:

All these midwives have a license from ministry of health to provide care

Proportion of Sample size:

Those midwives were distributed as demonstrated in table

NO	Name of center	Number of midwives
1-	Al kend	5
2-	Jebal um ali	4
3-	Al tarajma	3
4-	Al salama Bahri	4
5-	Gado	3
6-	Al Geblab	5
7-	Banaga Al Goba	3
8-	Kegina	12
9-	Shendi	6
	Total	45

Sampling criteria:**Inclusion criteria:**

All midwives who are providing service of antenatal care in centers and had licensed from ministry of health to provide care.

Variables:**Independent variables:**

The training Program of antenatal care in midwifery, Socio demographic data.

Dependent variables:

Knowledge and practices of midwives of antenatal care in centers of Shendi town and surrounding villages.

Data collection tools:

Data collected by using structured sheets include tool 1– Structured Questionnaire to assess midwives' knowledge; and tool 11: Observation check list to evaluate practices of midwives during providing antenatal care service on pregnant women in health centers.

Development of data collection tools

Data was developed by the investigator based on literature review of the current study, include the following:

Section 1:- Structured Questionnaire

Consist of two parts:-

Part 1: Socio demographic data which include seven items (age, marital status, level of education, and the number of developing courses for antenatal care, justification to become midwives, name of center, years of work as midwives).

Part 11: consists of (37) questions to assess the knowledge and practices regarding antenatal care of midwives, which will be applied as pre-post-test of program among midwives. It includes:

- What's the meaning of ante natal care?
- Number of visits for pregnant women to check– up pregnancy period.
- Important injection tetanus toxoid (TT) given to pregnant women.

- Important screening doing for pregnant women.
- Important taking history from pregnant women.
- Important health education for women during pregnancy.

Section 1: Observation check list sheet

The aim of this list is to evaluate midwives' practices pre and post -test of administering program by using structured check list during midwives' practice.

The list contents are the following:-

A)-General history: - the research assessed the midwives during taking history as they ask pregnant women from:-

- Demographic data
- Medical history
- Surgical history
- Family history
- Obstetrical history
- Gynecological history
- menstrual history to calculate the Expected Date of Delivery
- Signs and symptoms of pregnancy.
- Symptoms indicating complications : (fever, vomiting vaginal discharge, bleeding and itching ask about palpitations, easy fatigability, breathlessness at rest/on mild exertion, puffiness of the face, severe headache and blurring of vision or absent fetal movement).
- Leakage of watery fluid per vagina.
- Previous pregnancies in details.

B)- General Physical Examination:

- The midwives assessed the (pallor, jaundice, edema, weight, breast examination, pulse, respiratory rate, blood pressure.
- Abdomen examination for pregnant women, midwives assessed and measure the fundal height, determination of fetal lie and presentation by

fundal palpation, lateral palpation, pelvic grip, auscultation of fetal heart sounds.

C- Assessment of Laboratory Investigation

- Urine for pregnancy test, sugar and protein.
- Blood for hemoglobin (HB), blood grouping including Rhesus factor (Rh), human immunodeficiency virus (HIV).

D- Intervention

- For medication (folic acid, iron), TT injection
- Health education to needs and problems

Field Work:

This study was carried out in the period from 2022- to 2024. Data was collected from the antenatal clinic centers of Shendi town and village, after obtaining the written approval from the dean of the faculty of nursing Shendi university addressing the director of Shendi centers to permit implementation of educational program, the researcher taught the targeted study group during three days, the first day from 8:00 AM -1:00 P.M to fill questionnaire and observe the midwives' practice through using checklist, then started the program according to program schedule below:

Phase 1: Assessment phase

Explained to midwives in the centers the aim of the study and took their consent to participate in the study to data collection. Initial assessment was collected from study group by the investigator using questionnaire and check list before the program (pretest).

Phase 1: implement teaching program

In which the antenatal care program material was taught and applied by the researcher based on available resources and review of relevant literature including (WHO) and booklet developed by the researcher regarding antenatal care to help the participants in receiving the message. The program was

presented in clear, concise manner and focused on the point to be learned, using different methods as lectures, pictures, discussion, and videotapes.

Phase 111: Evaluation

Evaluation of the program for antenatal care was done after nine months of the program implementation. Data was collected by the same methods of data collection used in phase one (posttest).

The Program:

Aim of Program: To increase knowledge and practices of midwives regarding antenatal care.

-The program includes lectures and practices

Part one: lectures include:

- Meaning of antenatal care.
- Objective of Antenatal Care.
- Physiological changing during pregnancy.
- Diagnosis and signs of pregnancy.
- Important investigation during pregnancy
- Immunization during pregnancy.
- Frequent antenatal visit.
- Health education (diet, exercise, clothes, cleaning ... elt)
- The warning symptoms

Health Educational program:

After collection of pretest data, the midwives received the educational program and then the same tools used in pretest will be used to collect post test data from midwives. An intensive educational program designed by the researcher according to knowledge and practices that midwives need to provide best care for pregnant women.

Part two: Practice:

The researcher applies the following:

- 1) Taking history.
- 2) Obstetric examination on model for all study group
- 3) Measure vital signs (blood pressure, pulse, respiratory and body temperature).
- 4) Weighting.

Statistical Analysis

Data were processed and analyzed using SPSS version 16. Descriptive statistics were used to describe data. Mean tests were used to test associations between the outcome variables (knowledge and skills). The level of statistical significance level was set at $P < 0.05$. The proportions were reported for each category in the frequency tables with the correct (C.A) and wrong (W.A) answers. The graphical presentation depicted the respective variable categories in the form of bar graphs and pie charts. The pre and post-program scoring for the study data is graded as follows, (0-4) as (poor); (5-7) as (good) and (8-10) as a (very good) score

Administrative design Related to Ethical Consideration:

The study proposal was ethically cleared and endorsed to the research committee in the nursing faculty, Shandi University's research management unit. It was also officially endorsed by the ethical committee in the primary health related to Shandi town centers and village where the study was conducted.

And also to get the consent of all midwives involved in the study by signature, that letter will be upon request presented from the investigator .

They were assured that all the gathered data will be used for research purpose only. Participants, confidentiality, privacy, safety and protection was secure.

Results:

The proportions were reported for each category in the frequency tables. Graphical presentation depicted the variable categories in the form of bar graphs

Discussion:

The results discussed in the light of national and international standard knowledge and practice of antenatal care program.

Recommendation:

It was derived from the results and discussion

Results

Table (4.1) Distribution of midwives according to the health center (n =45)

Center Name	Frequency	Percentage
Al kend	5	11.1
Jebal um ali	4	8.9
Al tarajma	3	6.7
Al salama Bahri	4	8.9
Gado	3	6.7
Al Geblab	5	11.1
Banaga Al Goba	3	6.7
Kegina	12	26.7
Shendi	6	13.3
Total	45	100.0

About 12 midwives from Kegina (26.7%)

Demographic characteristics: Table (4.2) Demographic characteristics of the 45 midwives from nine health center.

variable		Frequency	Percentage
Age	30-39 years	7	15.6
	40-49 year	19	42.2
	50- 59 years	9	20.0
	Above 60 years	4	8.9
Education Level	Primary school	38	84.4
	Secondary school	4	8.9
	Literacy	2	4.4
Married Status	Married	36	80.0
	Un married	3	6.7
	Divorced	4	8.9

Table (4.3) Details of studied group according to experience (n=45)

variable		Frequency	Percent
Experience	Less than 5 years	2	4.4
	6-10 years	3	6.7
	11- 15 years	4	8.9
	16-20 years	16	35.6
Attend Training Course	No	10	22.2
	Yes	33	73.3
Number Training Course	1-3 course	19	42.2
	4-7 course	9	20.0
	above 7 courses	1	2.2
Mid wife Supervise pregnant women/ week	1-5 cases	31	68.9
	6--10 cases	8	17.8
	16- 20 cases	1	2.2
	above 20 cases	2	4.4

Table (4.4) Distribution of participants Knowledge regarding general information about prenatal care and pregnancy

Item	Pre test		Post test	
	Correct answer		Correct answer	
	n	%	n	%
What is the meaning of the term pregnant care?	32	71.1	45	100
Purpose of caring for pregnant women during pregnancy	39	86.7	45	100
What is the main purpose of starting early antenatal care?	31	68.9	44	97.8
What is the name of pregnancy hormone?	10	22.2	31	68.9
What is the function of the pregnancy hormone	27	60	39	86.7
Mean Score	27.8	61.78	40.8	90.68

Table (4.5) Distribution of knowledge score for participant regarding the signs and physiological change during pregnancy(N=45)

Item	Pre test Correct answer		Post test Correct answer	
	n	%	n	%
What are the signs of pregnancy?	27	60	45	100
What are the causes of the physiological changes that occur to a woman during pregnancy	19	42.2	43	95.6
Mean Score	23	51.1	44	97.8

Table (4.6) Distribution of knowledge score for participants regarding calculated the period of pregnancy and number antenatal visit (N=45)

Item	Pre test Correct answer		Post test Correct answer	
	n	%	n	%
How can calculate the period of pregnancy and the expected date of birth	32	71.1	45	100
How many visits are needed for a normal pregnancy during pregnancy	30	66.7	45	100
Mean Score	31	68.9	45	100

Table (4.7): Distribution of knowledge score for participants regarding investigation that are used to test for pregnancy (N=45)

Item	Pre test		Post test	
	Correct answer		Correct answer	
	n	%	n	%
What investigation that are used to test for pregnancy	41	91.1	45	100
Which is more accurate lab investigatin to confirm pregnancy	26	57.8	45	100
When is anemia diagnosed for a pregnant mother	16	35.6	41	91.1
Mean Score	27.6	61.5	43.6	97

Table (4.8) Distribution of knowledge score for participants regarding giving medication during pregnancy

Item	Pre test		Post test	
	Correct answer		Correct answer	
	n	%	n	%
When you to give folic acid during pregnancy	21	46.7	45	100
What is the recommended daily dose of folic acid during pregnancy	12	26.7	45	100
What are the complications that may occurs if not taking folic acid during pregnancy	31	68.9	45	100
What is the recommended daily dose of iron during pregnancy?	18	40.0	41	91.1
When is iron given during pregnancy	23	51.1	45	100
Mean Score	21	46.7	44.2	98.2

Table (4.9) Showing Distribution of knowledge score for participants regarding administration vaccinations for women during pregnancy (N=45)

Item	Pre test		Post test	
	Correct answer		Correct answer	
	n	%	n	%
What vaccinations that are administration for women during pregnancy	21	46.7	45	100
What is the total number of doses of tetanus vaccination for women of childbearing age	31	68.9	45	100
How to start administering a tetanus dose to a pregnant woman for the first time	31	68.9	45	100
What are the problems resulting from not taking a tetanus vaccine for a mother during pregnancy	22	48.9	45	100
Mean Score	26.3	58.4	56.3	100

Table (4.10) Showing participants of knowledge score regarding number of normal fetal movement and fetal heart rate during during pregnancy (N=45) .

Item	Pre test Correct answer		Post test Correct answer	
	n	%	n	%
What is the number of normal fetal movement during the day during pregnancy	19	42.2	43	100
What is the normal heart rate for the fetus?	25	55.6	38	84.4
Mean Score	22	48.9	40.5	

Table (4.11) Distribution of knowledge score for participants regarding essential nutrients and natural increase body weight for women during pregnancy (N=45)

Item	Pre test		Post test	
	Correct answer		Correct answer	
	n	%	n	%
What is the natural increase that occurs in the body for women during pregnancy?	12	26.7	44	97.8
What are the essential nutrients that pregnant women need during pregnancy	32	71.1	45	100
Mean Score	22	48.9	44.5	

Table (4.12) Showing instructions that giving for women during

Item	Pre test		Post test	
	Correct answer		Correct answer	
	n	%	n	%
What are the instructions that you give to the pregnant mother in case of complaining of constipation	18	40	45	100
What are the instructions that you would like directed to pregnant mother in case of complaining of nausea	38	84.4	45	100
What are the instructions that you give to the pregnant mother in the event of a complaint of swelling	35	77.8	45	100
How you provide breast care for women during pregnancy	36	80	45	100
What is the complication of traveling during pregnancy?	31	68.9	45	100
What are the benefits of practicing daily activities for a pregnant woman	27	60	45	100
Mean Score	31	69	45	100

pregnancy

Table (4.13) Distribution of knowledge score for participants regarding symptoms that indicate a high-risk pregnancy in the first three months of pregnancy (N=45)

Item	Pre test		Post test	
	Correct answer		Correct answer	
What are the symptoms that indicate a high-risk pregnancy in the first	9	20	45	100
What are the symptoms that indicate a high-risk pregnancy in the first three months of pregnancy	22	28.9	45	100
Mean Score	16	12.4	45	100

Table (4.14) Distribution of knowledge score for participants regarding routine procedures that must be followed for a pregnant woman in the first and subsequent visit (N=45)

Item	Pre test						Post test					
	Correct answer						Correct answer					
	good		moderate		poor		good		moderate		poor	
n	%	n	%	n	%	n	%	n	%	n	%	
routine procedures that must be followed for a pregnant woman in the first visit	3	6.7	31	68.9	11	24.2	27	60	11	24	7	15
routine procedures that must be followed for a pregnant woman in subsequent visit	28	62	15	33	2	4.4	31	68.9	14	31.1	----	---
Mean Score	16	34.4	23	51	6	14.3	29	46.5	13	28	3.5	7.5

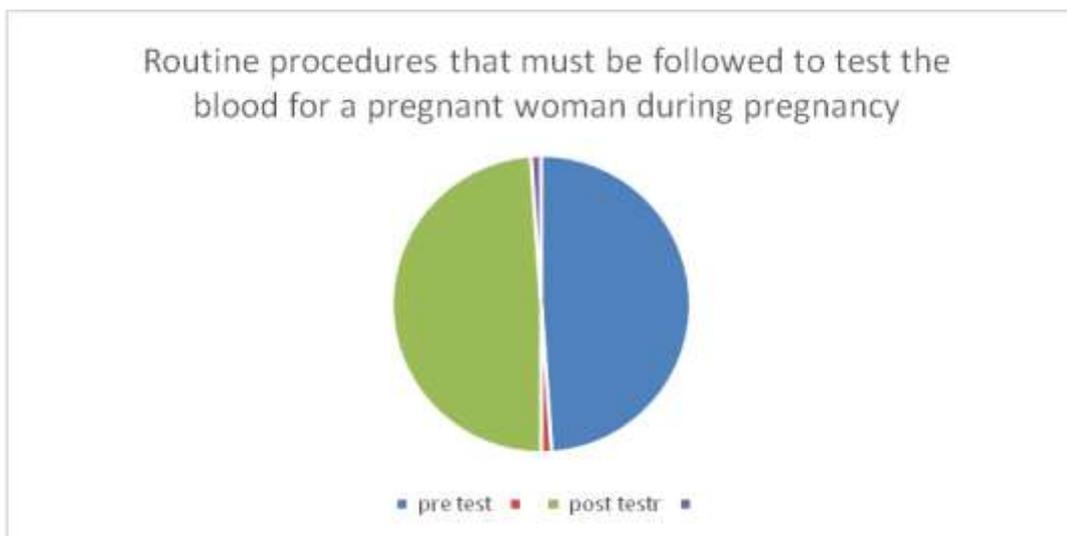


Figure (4.1): (53.3%) of studied midwives had good score of knowledge regarding routine procedures that must be followed to test the blood for a pregnant woman during pregnancy while these score changed to (56%) good knowledge in the posttest after receiving the training program put not statistical significant ($p=0.08$)

Result midwives' Total knowledge

Table (4.15) Detailed midwives' knowledge before and after the implementation of the educational program. (n=45)

No	Question Knowledge	Before implementation of the program		After implementation of the program		P.Value
		Correct answer		Correct answer		
		Frequency	Percentage	Frequency	Percentage	
1.	Meaning of the term pregnant care	32	74.4	45	100	0.00
2.	Purpose of caring for pregnant women during pregnancy	39	90.7	45	100	0.112
3.	Main purpose of starting early antenatal care	31	68.9	45	100	0.21
4.	The name of pregnancy hormone	10	22.5	31	68.9	0.01`
5.	The function of the pregnancy hormone	27	60	39	86.7	0.04
6.	The signs of pregnancy?	27	60	45	100	0.00
7.	Investigation that are used to test for pregnancy	41	91.1	45	100	0.123
8.	More accurate to confirm pregnancy	26	57.8	45	100	0.00
9.	calculate the period of pregnancy and the expected date of birth	32	71.1	45	100	0.04
10.	causes of the physiological changes that occur to a pregnant woman during pregnancy	19	42.2	43	95.6	0.00
11.	Visits number that are needed for a normal pregnancy during pregnancy	30	66.7	45	100	0.03
12.	Taking folic acid during pregnancy	21	46.7	45	100	0.00
13.	The daily recommended dose of folic acid during pregnancy	12	26.7	45	100	0.00
14.	The complications that may occurs if not taking folic acid during pregnancy	31	68.9	45	100	0.00
15.	Vaccinations that are Administration for women during	21	46.7	45	100	0.00

	pregnancy					
16.	The total number of doses of tetanus vaccination for women of childbearing age	31	68.9	45	100	0.00
17.	Start administering a tetanus dose to a pregnant woman for the first time	31	68.8	45	100	0.01
18.	The problems that are resulting from not taking a tetanus vaccine for a mother during pregnancy	22	48.9	45	100	0.00
19.	When anemia diagnosed for a pregnant mother	16	35.6	41	91.1	0.00
20.	Recommended daily dose of iron during pregnancy	18	40	41	100	0.00
21.	When iron taking during pregnancy	23	51.1	45	100	0.00
22.	The number of normal fetal movement during the day during pregnancy	19	42.2	43	95.6	0.00
23.	The normal heart rate for the fetus?	25	55.6	38	100	0.80
24.	The natural increase that occurs in the body for women during pregnancy?	12	26.7	44	97.8	0.00
25.	The essential nutrients that pregnant women need during pregnancy	32	71.1	45	100	0.02
26.	Health education for pregnant women in case complain of constipation	18	40.9	45	100	0.00
27.	Health education for pregnant women in case complain of nausea	38	84.4	44	100	0.024
28.	Health education for pregnant women in case complain of swelling	35	77.8	45	100	0.06
29.	provide breast care for women during pregnancy	36	80	45	100	0.19
30.	The complication of women in case travel during pregnancy	31	68.9	45	100	0.01
31.	The benefits of practicing daily activities for a pregnant woman	27	60	45	100	0.00
32. ;	The side effect if pregnant mother exposure to radiation	22	51.2	45	100	0.00
33.	The symptoms that indicate a high-risk pregnancy in the first three months of pregnancy	9	22.0	45	100	0.00
34.	The symptoms that indicate a	13	28.9	45	100	0.00

	high-risk pregnancy in the second and third trimesters					
35.	Routine procedures that must be followed for a pregnant woman in the first visit	3	6.7	27	60	0.00
36.	Routine procedures that must be followed for a pregnant woman in the subsequent visit	28	62.2	31	68.9	0.33
37.	Routine procedures that must be followed to test the blood for a pregnant woman during pregnancy	24	53.3	24	54.	0.08
38.	Mean Score	24	55	42	95	0.04

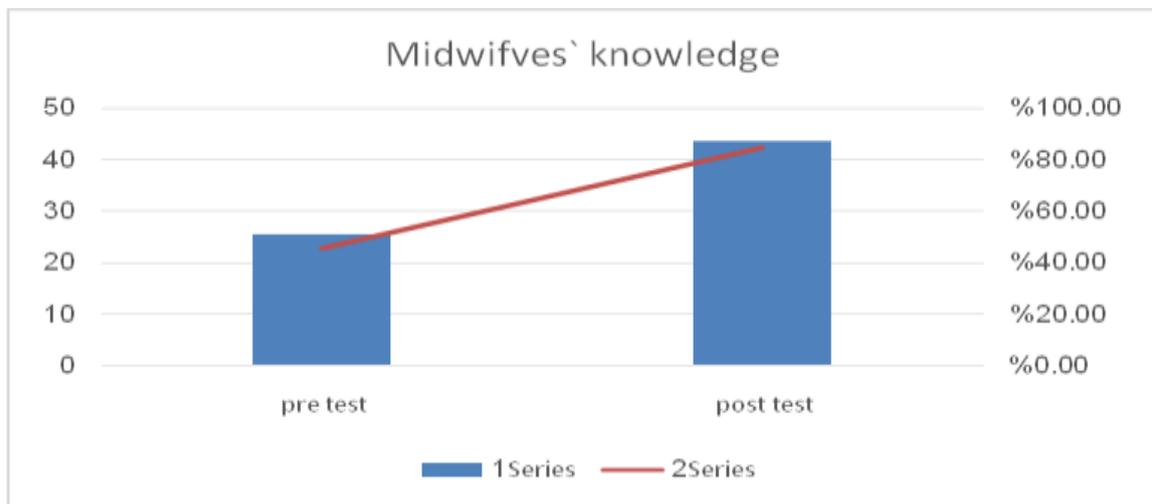


Figure (4.2) Overall score grade of midwives'` knowledge before the educational program versus after the program in Shendi centers and village (n=45)

Detailed midwives` practice assessment pre and post educational program.

The pre and post-program scoring for the study data is graded as follows, (0-4) as (poor); (5-7) as (good) and (8-10) as a (very good) score

Table (4.16) Distribution of practice score for participants regarding reception of pregnant women pre and post program (N=45)

	Pre test		Post test		P.Value
	Frequency	Percent	Frequency	Percent	
Very good	1	2.2	38	84.4	0.030
Good	1	2.2	3	6.7	
Fair	43	95.6	4	8.9	
Total	45	100.0	45	100.0	

Significantly great majority (2.2%) of midwives had good score practice before intervention. while, their practice significantly improved after intervention (84.4%).

Table (4.17) Distribution of practice score for participants regarding taking general history from pregnant women pre and post program (N=45)

Item	Pre test						Post test					
	Very good		good		fair		Very good		good		fair	
	n	%	n	%	n	%	n	%	n	%	n	%
Social history	10	22.2	26	57.8	9	20	41	91.1	4	8.9	0	0
Present and past history	30	66.7	6	13.3	9	20	42	93.3	2	4.4	1	2.2
Current pregnancy history	27	60	13	28.9	5	11.1	42	93.3	2	4.4	1	2.2
Obstetric history	16	35.6	24	53.3	5	11.1	44	97.8	1	2.2	0	0
Family history	4	8.9	19	42.2	22	48.9	31	68.9	10	22.2	4	8.9
Gynecological history	10	22.2	22	48.9	13	28.9	36	80	7	15.6	2	4.4
Mean score												

There was (20%) of midwives had fair score practice before intervention regarding taking social and present history. while, their practice significantly improved after intervention (0%) for social history, current pregnancy history and previous delivery history had fair score before intervention versus in post intervention had fair score (92.2%) for current pregnancy history and 0% for previous delivery history

Table (4.18) Distribution of practice score for participants regarding application the physical examination for pregnant women pre and post program (N=45)

Item	Pre test						Post test					
	Very good		good		fair		Very good		good		fair	
	n	%	n	%	n	%	n	%	n	%	n	%
Prepare pregnant women and equipment for body examination	6	13.3	13	28.9	26	57.8	38	84.4	5	11.1	2	4.4
Assessment general appearance	7	15.6	13	28.9	25	55.6	39	86.7	3	6.7	3	6.7
Measuring vital signs	6	13.3	20	44.4	19	42.2	37	82.2	5	11.1	3	6.7
Measuring weight and height	7	15.6	21	46.7	17	37.8	39	86.7	4	8.9	2	4.4
Assessment head and nick	11	24.4	15	33.3	19	42.2	34	75.6	9	20	2	4.4
Assessment respiratory system	12	16.7	15	33.3	18	40	30	66.7	13	28.9	2	4.4
Assessment abdominal & lower limb	10	22.2	17	37.8	18	40	41	91.1	4	8.9	0	0
Leopold maneuvers	10	22.2	17	37.8	18	40	36	80	5	11.1	3	6.7
Mean Score	12	24	22	49	27	59	49	653.4	8	17.7	3	6

There was improvement of midwives had fair score practice post intervention (4.4%) regarding Prepare a pregnant women and equipment, assessment Leopold's maneuvers and Measuring Weight and height for visits pregnant women in health center. while, their before intervention had fair score before (57.8) for Prepare a pregnant women and equipment, (40%) for Leopold's maneuvers and Measuring Weight and height (37.8%)

Table (4.19) Distribution of practice score for participants regarding routine laboratories check-up for pregnant women pre and post program (N=45)

Lab Assessment								
Pre test		Frequency	Percent	post test		Frequency	Percent	<i>P. Value</i>
	Very good	13	28.9		Very good	38	84.4	0.221
	Good	16	35.6		Good	6	13.3	
	Fair	16	35.6		Fair	1	2.2	
	Total	45	100.0		Total	45	100.0	

There was improvement in post midwives' practice had fair score is (2.2 %)when comparison with before is (35.6%) regarding investigation lab assessment, but not significant.

Table (4.20) Distribution of midwives 'practice score regarding providing health education for pregnant women pre and post program (N=45)

Health Education								
Pre test		Frequency	Percent	post test		Frequency	Percent	<i>P.Value</i>
	Very good	12	26.7		Very good	43	95.6	0.198
	Good	19	42.2		Good	1	2.2	
	Fair	14	31.1		Fair	0	0	
	Total	45	100.0		Total	1	2.2	

There was improvement in post midwives' practice had fair score is (0%) when comparison with before is (31.1%) regarding providing health education for pregnant women but not significant.

Table (4.21) Showing distribution of practice score of the participants pre and post

No	Item	Pre test						Post test					
		Very good		Good		Fair		Very good		Good		Fair	
		N	%	N	%	N	%	N	%	N	%	N	%
1-	reception of pregnant women	1	2.2	1	2.2	43	95.6	38	84.4	3	6.7	4	8.9
1-	Participant	10	22.2	26	57.8	9	20	41	91.1	4	8.9	0	0
2-	Practical score for	30	66.7	6	13.3	9	20	42	39.3	2	4.4	1	2.2
3-	Taking history	27	60	13	28.9	5	11.1	42	34.3	2	4.4	1	2.2
4-		16	35.6	24	53.3	5	11.1	44	97.8	1	2.2	0	0
5-		4	8.9	19	42.2	22	48.9	31	68.9	10	22.2	4	8.9
6-		10	22.2	22	48.9	13	28.9	36	80	7	15.6	2	4.4
1-	Participant	6	13.3	13	28.9	26	57.8	36	84.4	5	11.1	2	4.4
2-	Practical score for	7	15.6	13	28.9	25	55.6	39	86.7	36	6.7	3	6.7
3-	Application	6	13.3	20	44.4	19	42.2	37	82.2	5	11.1	3	6.7
4-	Physical examination	7	15.6	21	46.7	7	37.8	39	86.7	4	8.9	2	4.4
5-		11	24.4	15	33.3	19	42.2	43	75.6	9	20	2	4.4
6-		12	26.7	15	33.3	18	40	30	66.7	13	28.9	2	4.4
1-	Lab assessment	13	28.9	16	35.6	16	35.6	38	84.4	6	13.6	1	2.2
1-	Health education	12	26.7	19	42.2	14	31.1	43	95.6	1	2.2	0	0
Total		171	380.1	242	537.7	307	482.3	541	1073.7	105	160.2	23	50.9
Mean Score		11.4	25.34%	16.1	35.8%	13.8	32.15%	36	71.6%	7	10.75%	1.5	3.4%

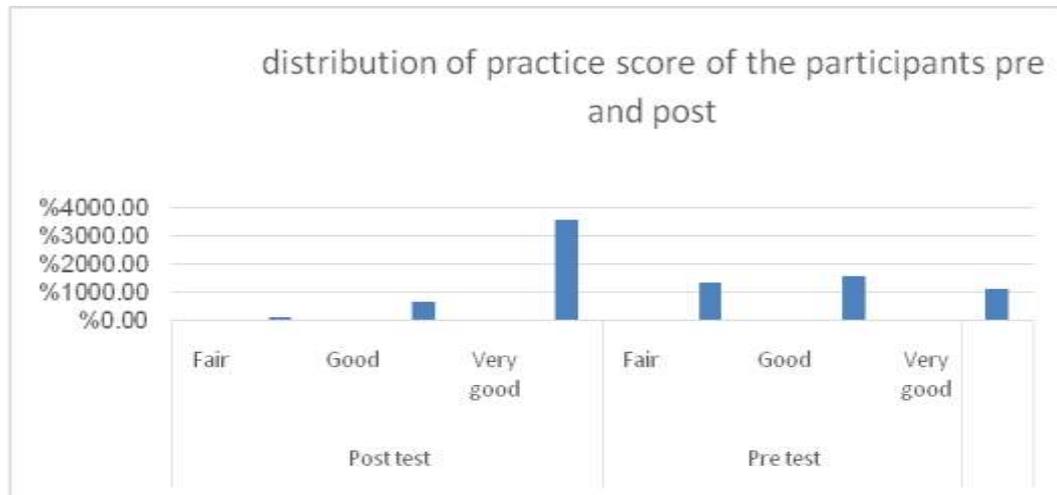


Figure (4.3) Overall score grade of midwives' practice before the educational program versus after the program in Shendi centers and village (n=45)

5.1 Discussion

This study is a quiz-experimental, aimed to assess the effectiveness of Educational Program Regarding antenatal care on midwives' knowledge and practices at Shendi town and village centers. It involved forty -five midwives. The present study documented that more than forty percent of studied midwives were in age group (40 - 49 years) the majority of them had primary education. Also, these findings are consistent with a study performed by Mustamin, Ridwan. et al, regarding training effect to the knowledge and skills of midwives in maternity health services as primary health care, were in the age group (20-30 years) 3 people, (31-40 years)4 people, (41-50 years) one people. The level of education completing at the diploma level 8 person (100%)⁽²⁴⁾.

Most of study group work experience was above 20 years was (n=17,37.8%), (n=16 ,35.65) had (16-20) experience years, this experience years will impact on their caring for pregnant women in future. The result of this study is supported by the finding of the research with Aminah et. regarding Supervision of Midwife Coordinator to Antenatal Care Service Quality with Work Motivation as an Intervening Variable (2019) who report that respondents who have a working period of 1-5 years are (n= (2,4.45%) people (67.6%), work period of 6-10 years is 14 respondents (31.25%), and respondents with a working period of 11-15 years have 13 respondents (27.08%) and the service period > 15 years there are 12 people (25%). And they said that this means that the majority of respondents in the productive period who already have a work period of more than 5 years, the longer the service period of the midwife has an impact on the role of the midwife. The longer the working period, the better the ability because it has adjusted to the job⁽²⁵⁾.

The study revealed that (n=33 , 37.7%) received previous training programs on antenatal care, and forty percent of the study group received (1-2 training

courses) These results were in disagreement with EL- Shaimaa et al. regarding effect of Applying a Modified Standard of Antenatal Care on Quality of Nursing Practices And Women's Satisfaction(2017) who conducted that more than half of nurses did not receive any previous training programs on antenatal care. This may be due to the work overload and the high attendance rate of women, which make nurses busy and have many duties to be performed ⁽²⁶⁾.

The present study revealed that (n=32,74.4%) midwives had improved knowledge in post - test regarding the meaning of pregnant care. This result is similar to a finding in Natalia Adamou et al. regarding delays in accessing antenatal care services in a developing nation tertiary health center (2020) who report that: most of the respondents(n= 84 ,91.3%) had adequate knowledge on the meaning of antenatal care and 86 (93.5%) believed that ANC was required by every pregnant woman. Most clients(n= 62 ,67.4%) believed that ANC should be commenced between 4 and 6 months gestation with (n=77 ,83.6%) booking their index pregnancy between 16 and 24 weeks of pregnancy ⁽²⁷⁾.

More than three-quarters of the study group knowledge regarding the main purpose of early starting antenatal care in the pre-test (n=31 ,68.9%) versus in post-test was (n=44 , 97.8 %) this indicates that midwives are sufficiently aware of their main role in the care of pregnant women, which contributes to the early detection and treatment of diseases

In relation to knowledge regarding signs of pregnancy, the present study stated that highly significant score of knowledge was recorded after intervention (100.0%)compared with before intervention (60.0%), This reflects the extent to which midwives have increased their knowledge of the various signs of pregnancy, which contributes to detecting pregnancy early and taking the necessary measures during pregnancy

The (n=41, 91.1%) of respondents known important investigation that are used to confirm the pregnancy in pre – test versus in post -test(n=45,100%) most midwives believe that urine analysis for pregnancy is more accurate than blood analysis, and this can be due to the lack of courses provided in the field of pregnancy care there was research with Lauren regarding Home pregnancy test use and timing of pregnancy confirmation among people seeking health care(2022) who found that three quarters of respondents took home pregnancy test the first step in confirming pregnancy; this figure was lower among adolescents versus young adults (65 vs 81%, p = 0.01)⁽²⁸⁾.

The study showed that there is improvement in knowledge of midwives regarding the recommended number of antenatal visits for normal pregnancy in post-test (100%), this explains the lack of knowledge of what is new in the field of pregnancy care, this agrees with similar findings (Linda MuleyaLibingi, Catherine M Ngoma, and Yolanda Banda) who stated that more than half (53.9%) of midwives did not know the recommended timing of the first antenatal visit, the optimal the number of visits and basic interventions that were offered during antenatal care consultations. This could be due to most pregnant women reporting for antenatal care after 20 weeks 'gestation'⁽²⁹⁾ The study reveals that there was a significantly improvement in post knowledge (100%) when compared with before (46.7%) regarding giving folic acid during pregnancy while there was a significant improvement in post knowledge is (100%) when compared with before (32.4%) regarding recommended daily dose of folic acid during pregnancy and also the study showed that the iron supplement there was significantly improvement in post knowledge (91.1%) as compared with before (48.6%) regarding the recommended daily dose of iron during pregnancy improved in post knowledge is (100%) when compared with before is (54.8%) regarding giving iron during pregnancy 'these result partial finding by Tamoor,(2019) finding in this study the women have a positive attitude towards IFA supplements⁽³⁰⁾.

There was significant improvement in post knowledge (100%) in comparison with before knowledge (46.7%) regarding available vaccinations for pregnant women during pregnancy, this can be attributed to the lack of vaccines in health centers. It is similar to the finding in this study, other studies By Motlatso Godongwana et al, have found that antenatal and maternity staff have an important role to play in allaying existing fears around maternal immunization by providing adequate information regarding immunization to pregnant women and all other patients attending health facilities. This is mainly because women, including mothers, trust healthcare providers to provide them with information even in situations where the patient does not ask for this information⁽³¹⁾.

The present study showed that there was a significantly improvement in post-knowledge (84.4%) as compared with before (55.6%) regarding normal heart rate for the fetus. Midwives do not calculate the fetal heartbeat for a full minute, and not evaluate if it is normal or not as they depend on the tone of the fetal heartbeat only. This may lead to a lack of assessment and awareness of the risks to the fetus this result agrees with Paschal et al who found that midwives had been using fetoscopes since their midwifery training, and they had vast experience using it. The Doppler was recently introduced in the maternity ward, and midwives had insufficient training in using it. Using a fetoscope, one must listen for the heartbeat, count using a watch, and calculate⁽³²⁾.

The present study found that there was significantly improvement in post knowledge (97.8%) as compared with before (26.7%) regarding natural increase that occurs in the body of a pregnant woman during pregnancy; the same result was found by Shauna Callaghan et al found that 12 studies reporting on 2652 midwives and obstetricians collectively were included. All studies were conducted in high-income countries. The synthesis of data was difficult as guidelines and methods for assessing knowledge varied. Midwives were mainly reported as the leading participant, with limited data available on

obstetrician knowledge. Both groups demonstrated insufficient knowledge of GWG (gestational weight gain) guidelines. Self-reported knowledge was significantly higher than those assessed by direct knowledge ⁽³³⁾.

The results showed that midwives had a significant improvement in post-knowledge (100%) compared to pre- (71.1%) regarding the essential nutrients needed by pregnant women during pregnancy, and this result was consistent with the study conducted by (Joyce Nancombe 1, Tom D Ngabirano on the knowledge, confidence and skills of midwives in maternal nutrition education during antenatal care 2020) where he stated that midwives have basic knowledge of nutrition but lack basic knowledge regarding maternal nutrition education. Midwives had moderate confidence in proficiency in providing maternal nutrition education to pregnant women ⁽²⁰⁾.

There was significant improvement in post knowledge (100%) in comparison with before (40.9%) regarding instructions given to the pregnant mother in case of complaining of constipation. The result was consistent with the study conducted by AyçaŞolt Kirca, et al, regarding (Effects of self-acupressure on pregnancy-related constipation: A single-blind randomized controlled study 2021) where he stated that ,this study, to the best of the authors' knowledge, is the first trial ever, carried out to evaluate the efficacy of acupressure in participants with constipation during pregnancy. As a result of this randomized controlled study, acupressure applied to TH-6 acupuncture point reduced the symptoms of constipation during pregnancy. The results were discussed within the framework of the results of other studies in which acupressure and acupuncture were applied to pregnant women experiencing ⁽³⁴⁾

There was improvement in post knowledge (100 %) in comparison with before (84.4%) regarding instructions that directed to pregnant mother in case of complaining of nausea. Similar result found with Farzaneh Safajouelt al, regarding The Effect of Combined Inhalation Aromatherapy with Lemon and Peppermint on Nausea and Vomiting of Pregnancy (2020) who stated that

mean (SD) scores of nausea and vomiting intensity before the intervention and on the first day of intervention were not significantly different between the two groups, but became significant on the second, third, and fourth days of intervention. The results showed that the effect of time on the mean intensity of nausea and vomiting was significant in the aromatherapy group ($F_{2,84} = 22.92, p < 0.001$) but was not significant in the placebo group ($F_{2,78} = 0.26, p = 0.836$)⁽³⁵⁾.

There was improvement in post knowledge (100%) in comparison with before (79.5%) regarding instructions that directed to pregnant mother in case of complaining of swelling; and there was improvement in post knowledge (100%) versus before (20%) regarding symptoms of high-risk pregnancy in the first three months and improvement in post knowledge (100%) in comparison with before (35.1%) regarding symptoms that indicate a high-risk pregnancy in the second and third trimesters of pregnancy. In a study by Beatrice Mwilikeelt all, found that more than half of the participants ($n = 222, 57.8\%$) were able to mention only one to three danger signs. Only 104 (31%) had correct knowledge of at least four danger signs and nine (2.7%) were not able to mention any item. The most commonly known pregnancy danger signs were vaginal bleeding (81%), swelling of the fingers, face, and legs (46%), and severe headache (44%). Older women were 1.6 times more likely to have knowledge of danger signs than young women⁽³⁶⁾

The present study showed improvement in providing information by midwives in the post-test (100) versus to pre-test (60%) regarding benefit of practicing daily activities for pregnant women. Same finding is in Okafor et al, who revealed that midwives rarely educate and counsel pregnant women about physical activity during their antenatal visits.⁽³⁷⁾

Skills levels

The second objective was to determine the procedures that midwives performed, using observations. A structured checklist was used to record the

clinical skills that participants performed, included history-taking, physical examination, giving information, education and communication.

There was an increase in post-practice of the study group had fair practice (n=1, 2.2 %) regarding taking present and past ill history, (n=1,2.2%) for taking current history, (n=0, 0%) for taking obstetric history, (n=4,8.9%) for family history and (n=2,4.4%) for gynecological history, and prepared pregnant women in the post-test, for physical examination had fair practice (n=2,4.4%), about (n=3 .6.75) in post-practice the study group had fair practice in measured vital signs, applied Leopold's maneuvers, the participant did not flow the universal stander to assessment abdominal examination. while there was an improvement in post-practice fair practice (n=1,2%) of the study group regarding lab investigation, this could be due to short of lab equipment and solutions in the laboratory. Within the scope of health education for midwives, it was noted that midwives are not interested in health education for pregnant women, as the study found a significant improvement in counseling for pregnant women (n = n,) in post-test. This result was consistent with the study conducted by (Linda Muley and her group on Antenatal care: assessing Zambian midwives' knowledge and skills 2019) where he stated that most respondents (n=58; 65%) were observed taking a history; that is social history (n=82;92.1%), obstetric history, (n=77; 86.5), menstrual history, (n=77; 86.5%), medical history (n=77; 86.5%), surgical history (n=81; 91.0%) and family history (n=69; 77.5%). With regards to physical examination, (n=83,93.3%) of the respondents were able to conduct a head-to-toe examination, (n=41,46.1%) were able to take body weight measurements, (n=74,83.1%) were able to take blood pressure measurements, (n=70,78.7%) were able to test urine, (n=78,87.6%) were able to record gravidity and (n=54,60.7%) were able to conduct HIV testing. The researcher observed that although physical examination was done, certain checks, such as breast examination and inspection of the abdomen for scars, were not done. Breast

examination is important to give appropriate advice for breastfeeding. Inspection of the abdomen will help to detect any surgery relating to the pelvis and helps the midwife to make a decision on the type of delivery to advise for such pregnant women.⁽³¹⁾

5.2 Conclusion

□ More than half of our study participant did not receive focused training on antenatal care .

□ The majority of midwives had inadequate knowledge before implementation of the program which reflected by overall score

55% good, after the program the knowledge score of 95% of them became very good.

□ Concerning midwives ' practice, most of them had a good practice in pre evaluation phase regarding some important practices such as monitoring vital signs, calculating fetal heart rate administering medication and provide routine follow up ,which significantly improved to be better after the program.

□ The majority of midwives discovered to perform many procedures poorly. These procedures were, hand washing pre and after the procedure , physical examination in the evaluation period. Their practice improved after receiving the program which indicates a satisfactory outcome.

5.3 Recommendations

Based on the study findings the following recommendations directed to the head committee of primary health centers of Shandi town and village are suggested:

- 1- Training and refreshing courses to upgrade midwives' knowledge and skills on antenatal care should be conducted.
- 2- Empower midwives to play and implement their role as health educator, counselor to help pregnant mothers to improve their knowledge regarding antenatal care.
- 3- Close monitoring and supervision is needed to ensure high quality of antenatal care activity.
- 4- Further extensive researches are needed in this area.

References

- 1- ABDELMOLA, Amani. Antenatal Care Services in Sudan Before and During the 2023 War: A Review Article. *Cureus*, 2023, 15.12.
- 2-WARRI, Denis; GEORGE, Asha. Perceptions of pregnant women of reasons for late initiation of antenatal care: a qualitative interview study. *BMC pregnancy and childbirth*, 2020, 20: 1-12.
- 3-UNICEF, et al. Trends in maternal mortality: 2000 to 2020: estimates by WHO, UNICEF, UNFPA, World Bank Group and UNDESA/Population Division. 2023.
- 4-TEGEGNE, Ayesheshem Ademe, et al. A circulating vaccine-derived poliovirus type 2 outbreak in a chronic conflict setting: a descriptive epidemiological study in South Sudan–2020 to 2021. *BMC Infectious Diseases*, 2023, 23.1: 816.
- 5- DAHL, Bente; HEINONEN, Kristiina; BONDAS, Terese Elisabet. From midwife-dominated to midwifery-led antenatal care: a meta-ethnography. *International Journal of Environmental Research and Public Health*, 2020, 17.23: 8946.
- 6- GELTORE, T. Ermias; ANORE, D. Laloto. The impact of antenatal care in maternal and perinatal health. *Empowering Midwives and Obstetric Nurses*, 2021, 107.
- 7-DAYYANI, Ida; LOU, Stina; JEPSEN, Ingrid. Midwives' provision of health promotion in antenatal care: A qualitative explorative study. *Women and Birth*, 2022, 35.1: e75-e83.
- 8- WORLD HEALTH ORGANIZATION, et al. Maternal and fetal assessment update: imaging ultrasound before 24 weeks of pregnancy. 2022.
- 9- MORIDI, Maryam; PAZANDEH, Farzaneh; POTRATA, Barbara. Midwives' knowledge and practice of Respectful Maternity Care: a survey from Iran. *BMC pregnancy and childbirth*, 2022, 22.1: 752.

- 10-.KEBEDE, Dagmawit Birhanu, et al. Maternal satisfaction with antenatal care and associated factors among pregnant women in Hossana town. *International journal of reproductive medicine*, 2020, 2020.
- 11- LONEY, Tom. Antenatal Care Initiation Among Pregnant Women in the United Arab Emirates: The Mutaba'ah Study. 2020.
- 12- LINDEN, Karolina. Expanding the concept of safety in antenatal care provision. *The Lancet*, 2021, 398.10294: 4-5.
- 13- AGUREE, Sixtus; GERNAND, Alison D. Plasma volume expansion across healthy pregnancy: a systematic review and meta-analysis of longitudinal studies. *BMC pregnancy and childbirth*, 2019, 19: 1-11.
- 14-NGENE, Nnabuike C.; MOODLEY, Jagidesa. Physiology of blood pressure relevant to managing hypertension in pregnancy. *The Journal of Maternal-Fetal & Neonatal Medicine*, 2019, 32.8: 1368-1377.
- 15- NGENE, Nnabuike C.; MOODLEY, Jagidesa. Blood pressure measurement in pregnancy and in hypertensive disorders of pregnancy: devices, techniques and challenges. *Cardiovascular journal of Africa*, 2019, 30.2: 120-129.
- 16 - MOST, Jasper, et al. Energy intake requirements in pregnancy. *Nutrients*, 2019, 11.8: 1812.
- 17- DE HAAS, Sander, et al. Blood pressure adjustments throughout healthy and hypertensive pregnancy: A systematic review and meta-analysis. *Pregnancy Hypertension*, 2022, 27: 51-58.
- 18- KOWALCZYK, Alicja, et al. The importance of interferon-tau in the diagnosis of pregnancy. *BioMed Research International*, 2021, 2021.
- 19- BROWN, Wendy J., et al. Australian guidelines for physical activity in pregnancy and postpartum. *Journal of Science and Medicine in Sport*, 2022, 25.6: 511-519.
- 20-NANKUMBI, Joyce; NGABIRANO, Tom D.; NALWADDA, Gorrette. Knowledge, confidence and skills of midwives in maternal nutrition education during antenatal care. *Journal of Global Health Reports*, 2020, 4: e2020039.

- 21- TIKMANI, Shiyam Sunder, et al. Trends of antenatal care during pregnancy in low-and middle-income countries: Findings from the global network maternal and newborn health registry. In: *Seminars in perinatology*. WB Saunders, 2019. p. 297-307.
- 22--LIBINGI, Linda Muleya; NGOMA, Catherine M.; BANDA, Yolán. Antenatal care: assessing Zambian midwives' knowledge and skills. *African Journal of Midwifery and Women's Health*, 2019, 13.2: 1-7.
- 23 DAYYANI, Ida; LOU, Stina; JEPSEN, Ingrid. Midwives' provision of health promotion in antenatal care: A qualitative explorative study. *Women and Birth*, 2022, 35.1: e75-e83.
- 24 AMIRUDDIN, R.; PALUTTURI, S.; RAHMAN, S. A. Training effect to the knowledge and skills of midwives in maternity health services at primary health care. *International Journal Of Community Medicine And Public Health*, 2018, 5.11: 4651-4655.
- 25 AMINAH, Siti; SOLOVIDA, Grace T. Supervision of Midwife Coordinator to Antenatal Care Service Quality with Work Motivation as an Intervening Variable. In: *International Conference on Banking, Accounting, Management, and Economics (ICOBAME 2018)*. Atlantis Press, 2019. p. 195-200.
- 26 SABRY, El-Shaimaa Samy; MANSOUR, Suzan El-Said; KHEDR, Nahed Fikry Hassan. Effect of Applying a Modified Standard of Antenatal Care on Quality of Nursing Practices And Women's Satisfaction. 2017.
- 27 ADAMOU, Natalia; ABDUL, Saeed Okatewun; UMAR, Usman Aliyu. Delays in accessing antenatal care services in a developing nation tertiary health center. *Sahel Medical Journal*, 2020, 23.2: 88-93.
- 28 RALPH, Lauren J., et al. Home pregnancy test use and timing of pregnancy confirmation among people seeking health care. *Contraception*, 2022, 107: 10-16.

- 29 LIBINGI, Linda Muleya; NGOMA, Catherine M.; BANDA, Yolán. Antenatal care: assessing Zambian midwives' knowledge and skills. *African Journal of Midwifery and Women's Health*, 2019, 13.2: 1-7.
- 30 ILMAS, Tamoor. Knowledge, Attitudes and Practices Regarding Iron and Folic Acid Supplementation Among Pregnant Women in Gujranwala, Pakistan. 2019. Master's Thesis. Itä-Suomen yliopisto.
- 31 GODONGWANA, Motlatso, et al. Knowledge and attitudes towards maternal immunization: perspectives from pregnant and non-pregnant mothers, their partners, mothers, healthcare providers, community and leaders in a selected urban setting in South Africa. *Heliyon*, 2021, 7.1.
- 32 MDOE, Paschal Francis, et al. Midwives' perceptions on using a fetoscope and Doppler for fetal heart rate assessments during labor: A qualitative study in rural Tanzania. *BMC pregnancy and childbirth*, 2018, 18: 1-10.
- 33 CALLAGHAN, Shauna, et al. Midwives' and obstetricians' level of knowledge of appropriate gestational weight gain recommendations for pregnancy: A systematic review. *Birth*, 2020, 47.4: 322-331.
- 34 KIRCA, Ayça Şolt; GÜL, Derya Kanza. Effects of self-acupressure on pregnancy-related constipation: a single-blind randomized controlled study. *Explore*, 2021, 17.5: 463-468.
- 35 SAFAJOU, Farzaneh, et al. The effect of combined inhalation aromatherapy with lemon and peppermint on nausea and vomiting of pregnancy: A double-blind, randomized clinical trial. *Iranian journal of nursing and midwifery research*, 2020, 25.5: 401-406.
- 36 MWILIKE, Beatrice, et al. Knowledge of danger signs during pregnancy and subsequent healthcare seeking actions among women in Urban Tanzania: a cross-sectional study. *BMC pregnancy and childbirth*, 2018, 18: 1-8.
- 37 OKAFOR, U. B.; GOON, D. T. Providing physical activity education and counseling during pregnancy: A qualitative study of midwives' perspectives. *Nigerian Journal of Clinical Practice*, 2021, 24.5: 718-728.

Appendix (1)

كلية طب شندي

نموذج رقم (1)

يقوم الباحث بعمل استبانته حول تقييم معرفة وممارسة القابلات لرعاية الحوامل في المراكز الصحية
لمحلية شندي

هذه المعلومات تجمع فقط بغرض البحث

الجزء الأول: المعلومات الأساسية

- 1- اسم المركز: -
- 2- العمر: -
- 3- المرحلة التعليمية: -
ابتدائي () متوسط () ثانوي ()
- 4- الحالة الاجتماعية:
متزوجة () عازبة () مطلقة () أخرى
- 5- كم عدد السنين التي قضيتها في مهنة القابلة:
.....
- 6- هل حصلت على دورات تدريبية خاصة برعاية الحوامل خلال السنوات السابقة؟
نعم () لا ()
إذا كانت الإجابة بنعم كم عدد الدورات التي حصلت عليها
.....
- منذ متى (كم سنة)؟
- 7- كم عدد الحوامل اللاتي تشرفين عليهن خلال الأسبوع (تقريباً)؟
.....
- ما هي الأدوات التي يجب توفرها في غرفة رعاية الحوامل في المراكز الصحية ؟

(ا) - الأثاثات ، أدوات طبية، الإضاءة الجيدة، قرطاسيه، - المصقات المرئية

(ب)- جهاز الأشعة السينية، الإضاءة الجيدة، قرطاسيه

(ج) - أدوات طبية الإضاءة الجيدة، جهاز الأشعة السينية

الجزء الثاني: معلومات القابلة عن رعاية الحوامل

(أ) - ضعي دائرة حول اصح إجابة للأسئلة التالية

ما معنى مصطلح رعاية الحوامل

(ا) - رعاية روتينية لتقييم حالة الجنين أثناء فترة الحمل

(ب) - رعاية طبية روتينية موصى بها للحوامل لمنع المشاكل الصحية أثناء فترة الحمل

(ج) - رعاية غير روتينية للام الحامل

2- ما الغرض الأساسي من بدء رعاية الحوامل مبكرا؟

(ا) - الكشف المبكر للأمراض وتجنب المضاعفات التي تحدث أثناء الحمل

(ب) - معرفة الأمراض الوراثية فقط التي تعاني منها المرأة الحامل

(ج) - معرفة الحالة الصحية للجنين

3- ما هو هرمون الحمل؟

(HCG) -

(ب) - البروجسترون

(ج) - الاستروجين

4- ما هي وظيفة هرمون الحمل؟

(أ) - يقوم بتهيئة بطانة الرحم لانغراس البويضة المخصبة وتغذية البويضة المخصبة

(ب) - يقوم بإفراز الحليب في ثدي الأم

(ج) - يقوم بتغذية الجنين

5 - ما هي علامات الحمل

(ا) - غياب الدورة الشهرية، تضخم وانتفاخ الثديين، كثرة التبول

(ب) - الغثيان الصباحي ، تضخم وانتفاخ الثديين ، النعاس

(ج) - كل ما سبق صحيح

6 - كيف يتم اختبار الحمل؟

(ا) - اختبار البول ، اختبار الدم ، الفحص علي التلغاز (موجات صوتية)

(ب) - اختبار البراز

(ج) - الفحص علي التلغاز (موجات صوتية) ، الفحص بالأشعة السينية في الشهور الاولى

7- أيهما ادق في تأكيد الحمل ؟

(أ) - فحص لدم لهرمون الحمل

(ب) - فحص البول لهرمون الحمل

(ج) - أشعة سينية

8- ما هي الفحوصات اللازمة للبول خلال فترة الحمل ؟

(أ) - البول للحمل، البول للبروتين، البول للسكري

(ب) - البول لليرقان

(ج) - كل ما سبق صحيح

9- كيف يتم حساب مدة الحمل وتاريخ توقع الولادة ؟

(أ) - نضيف سبعة أيام لتاريخ أول يوم لآخر حيض وإضافة تسعة أشهر للشهر الذي حدث فيه الحيض

(ب) - نضيف ثلاث أيام لتاريخ أول يوم لآخر حيض وإضافة تسعة أشهر للشهر الذي حدث فيه

الحيض

(ج) - نضيف أسبوعين لتاريخ أول يوم لآخر حيض وإضافة سبعة أشهر للشهر الذي حدث فيه الحيض

10- ما هي أسباب التغيرات الفسيولوجية التي تطرأ على المرأة الحامل خلال فترة الحمل ؟

(أ) - زيادة ارتفاع هرمون الاستروجين والبروجسترون

(ب) - انخفاض هرمون الاستروجين والبروجسترون

(ج) - زيادة ارتفاع هرمون الاستروجين فقط

11- ما عدد الزيارات اللازمة للحمل الطبيعي خلال فترة الحمل ؟

(أ) - على الأقل ثمانية

(ب) - ثلاث زيارات

(ج) - زيارة واحدة

12- متى يتم إعطاء الفوليك أسيد خلال فترة الحمل

(أ) - من بداية الحمل حتى نهاية الشهر السادس

(ب) - من بداية الحمل حتى نهاية الشهر الرابع

(ج) - من بداية الشهر السابع إلى الشهر التاسع

13- ما هي الجرعة اليومية الموصى بها من الفوليك أسيد أثناء الحمل ؟

(أ) - 1مليجرام يوميا

(ب) - 4 مليجرام يوميا

(ج) - 2 مليجرام يوميا

14- ما هي الآثار المترتبة من عدم اخذ الفوليك اسيد خلال فترة الحمل ؟

(أ) - انيميا الحوامل، تشوهات السلسلة الفقرية للجنين

(ب) - التهابات ما بعد الولادة

(ج) - تشوهات السلسلة الفقرية للام الحامل

15- ما هي التطعيمات المتاحة للحامل خلال فترة الحمل؟

(ا) التيتانوس، التطعيم ضد التهاب الكبد الفيروسي

(ب) - التطعيم ضد الايدز، التطعيم ضد الأنفلونزا

(ج) - كل ما سبق صحيح

16- ما هي عدد الجرعات الكلية للتطعيم ضد التيتانوس للمرأة في سن الإنجاب؟

(ا) - جرعتين

(ج) - خمسة جرعات

(ب) - ثلاث جرعات

17- كيف يتم بدء إعطاء جرعة التيتانوس للمرأة الحامل لأول مرة؟

(ا) - الجرعة الأولى في الشهر الرابع والثانية في الخامس من الحمل الأول

(ب) - ثلاث جرعات في الحمل الأول

(ج) - خمسة جرعات متتالية في الحمل جرعتين الثاني والثالث والرابع

18- ما هي المشاكل المترتبة من عدم اخذ تطعيم التيتانوس للام خلال فترة الحمل؟

(ج) - كل ما سبق صحيح

(ب) - إصابة الأم بالتيتانوس

(ا) - إصابة الجنين بالتيتانوس

19- متى يتم تشخيص الانيميا للام الحامل ؟

(أ) - إذا كان مستوى الهيموجلوبين أعلى من 11غ/د.ل

(ب) - إذا كان مستوى الهيموجلوبين 11 غ/د.ل.

(ج) - إذا كان مستوى الهيموجلوبين أقل من 11 غ/د.ل

20- ما مقدار الجرعة اليومية الموصى بها من الحديد أثناء الحمل؟

(أ) - 30-60 مليجرام

(ب) - 5 مليجرام

(ج) - أكثر من 1000 جرام

21- متى يتم إعطاء الحديد أثناء الحمل؟

(أ) - من بداية الشهر الرابع من الحمل وحتى الولادة

(ج) - من بداية الحمل وحتى الشهر الرابع

(ب) - من بداية الحمل وحتى نهاية الحمل

22- ما عدد حركة الجنين الطبيعية أثناء اليوم خلال فترة الحمل؟

(أ) - عشر حركات للجنين خلال ساعتين عند استلقاء الام على جانبها

(ب) - أكثر من عشرة حركات في اليوم يعتبر طبيعي

(ج) - خمس حركات في اليوم يعتبر طبيعي

23- ما هو المعدل الطبيعي لنبض الجنين؟

(أ) - 120-160 في الدقيقة

(ب) - 100-180 في الدقيقة

(ج) - أكثر من 200 في الدقيقة

24- ما هي الزيادة الطبيعية التي تحدث في الجسم للحامل خلال فترة الحمل؟

(أ) - 1-2 كيلو خلال فترة الحمل

(ب) 9-12 كيلو خلال فترة الحمل

(ج) 3-4 كيلو خلال فترة الحمل

25- ما هي المواد الغذائية الضرورية التي تحتاجها الحامل خلال فترة الحمل؟

(أ) - بروتين، فيتامينات، كربوهيدرات

(ب) - فيتامينات، الكثير من الدهون، كربوهيدرات

(ج) - كربوهيدرات، الكثير من المنبهات، فيتامينات

26- ما هي الإرشادات التي تقدمينها للام الحامل في حالة الشكوى من الإمساك؟

أ)-الإكثار من أكل الفاكهة والخضروات

ج)- كل ما سبق صحيح

ب)- وممارسة الرياضة والإكثار من شرب الماء

27- ما هي الإرشادات التي تقدمينها للام الحامل في حالة الشكوى من الغثيان

أ)- تتناول الأم الحامل وجبات صغيرة ومتعددة خلال اليوم

ج)- تناول قطعة الدسمة في الصباح

ب)- تناول الأطعمة الدسمة في المساء

28- ما هي الإرشادات التي تقدمينها للام الحامل في حالة الشكوى من التورم؟

أ)- تقليل الملح في الطعام ، تجنب الوقوف لفترة طويلة ، رفع الأرجل عند الاستلقاء

ب)- لبس الملابس الضيقة والضاغطة على الساقين

ج)- الوقوف لفترات طويلة

29- ما هي الاحتياطات الواجب اتخاذها خلال فترة الحمل؟

أ)- عدم الحركة وعدم ممارسة النشاطات المنزلية، عدم تناول الكحول ،الإكثار من المنبهات

ب)-الابتعاد من المرضى المصابين بأمراض معدية، عدم التعرض للتدخين ، ممارسة النشاطات المنزلية

ج)-عدم الإكثار النوم وعدم ممارسة الرياضة

30- كيف تكون العناية بالشديين خلال فترة الحمل؟

أ)-مسح الحلمتين بالمواد المرطبة لمنع تشقق الحلمتين ، استخدام حماله الصدرمناسبة الحجم

ب)-استخدام حماله الصدر الضيقة

ج) - كل ما سبق صحيح

31- ما هي الآثار المترتبة من السفر خلال فترة الحمل؟

أ)-السفر خلال الثلاث شهور الأولى من الحمل يزيد من معدل حدوث الإجهاض

ب)- السفر خلال الثلاث شهور الثالثة من الحمل يزيد من احتماليه الولادة المبكرة

ج)- كل ما سبق صحيح

32- ما هي فوائد ممارسه النشاطات اليومية للمرأة الحامل؟

أ)- تحسن صحة الأم وتضمن لها حملا جيدا

ب) -تسهيل الولادة

ج) كل ما سبق صحيح

33- ما هي الأعراض التي تدل على حمل عالي الخطورة في أول ثلاثة شهور من الحمل؟

أ) نزيف مهبلي حاد، الإعياء الشديد الذي يؤدي إلى الجفاف الشديد

ب)- نزيف مهبلي مع وجود أكياس عنبية، ارتفاع ضغط الدم

ج)- كل ما سبق صحيح

34- ما هي الأعراض التي تدل على حمل عالي الخطورة في المرحلتين الثانية والثالثة؟

أ)- ارتفاع ضغط الدم للام الحامل مع وجود بروتين في البول، ارتفاع درجة حرارة الأم الحامل

ب)- حدوث تشنجات للام الحامل، ارتفاع سكري الدم للجنين

ج)- كل ما سبق صحيح

ب)- اختاري أكثر من إجابة للأسئلة التالية:-

35- ما هي الإجراءات الروتينية اللازمة التي يلزم إتباعها للمرأة الحامل في الزيارة الاولى.؟

لا اعرف	لا	نعم	الفحوصات والكشوفات اللازمة للحامل في الزيارة الأولى
			أ) اخذ التاريخ المرضي
			ب) الفحص البدني
			ج) قياس العلامات الحيوية
			د) حساب التاريخ المتوقع للولادة
			هـ) - فحص البول
			و) - فحص الدم لهرمون الحمل
			ز) التطعيم ضد الكزاز
			ك) التطعيم ضد الايدز
			ل) -التطعيم ضد الكبد الفيروسي
			م) - التطعيم ضد الدرن
			ن) -التطعيم ضد الانفلونزا

36- ما هي الفحوصات والكشوفات اللازمة للحامل في الزيارات اللاحقة؟

لا اعرف	لا	نعم	الفحوصات والكشوفات اللازمة للحامل في الزيارات اللاحقة :
			(ا) معرفة المشاكل الصحية التي تشتكى منها الحامل
			(ب) الفحص البدني
			(ج) قياس العلامات الحيوية والوزن
			(د) حساب عمر الجنين
			(هـ) فحص الدم للهموقلوبين
			(و) فحص البول السكري
			(ز) فحص البول للبروتين
			(ك) فحص البول للالتهابات
			(ل) التطعيم ضد الايدز

37- ما هي الفحوصات الروتينية اللازمة للدم خلال فترة الحمل ؟

لا اعرف	لا	نعم	
			(ا) الدم للحمل
			(ب) الدم للهموجلوبين
			(ج) الدم للفصيلة
			(د) تحليل الدم الكامل
			(هـ) الدم للدرن
			(و) الدم لالتهاب الكبد الوبائي
			(ز) الدم للإيدز
			(ك) الدم الزهري
			(ل) الدم للسكري

Appendix (2)

جامعة شندي

كلية الطب والعلوم الصحية - قسم التمريض

نموذج رقم (2)

استمارة ملاحظة حول تقييم وممارسة القابلات لرعاية الحوامل في المراكز الصحية لمدينة شندي وقراها
سيدتي القابلة : أرجو شاكراً مساعدتي والمشاركة في الدراسة لتعم الفائدة

التاريخ المرضي 1-	الفقرات	تم تطبيقها كاملاً	لم تطبق الكامل	لم تطبق
(أ) استقبال المرأة الحامل:-				
	- تعريف القابلة أسمها للمرأة الحامل			
	- تعريف القابلة بدورها تجاه المرأة الحامل			
	- اشرح أهمية اخذ التاريخ للحالة			
	-الحصول على الموافقة لا إجراء الكشف			
	-التأكد ان الام الحامل مطمئنة ومريحة			
(ب) جمع البيانات الأساسية من المستفيدة	سؤال الام الحامل مما يلي :			
	- عمر الام الحامل			
	- مهنة الام الحامل			
	- المرحلة التعليمية للام الحامل			
	-عمر الزوج			
	-جنسية الزوج			
	-مهنة الزوج			
	المرحلة التعليمية للزوج			
	-صلة القرابة بين الزوجين			
	رقم الهاتف (الزوج والزوجة)			
(ج) التاريخ المرضي الحالي	سؤال الام الحامل بغرض :			
	- التعرف على الشكوى الحالية اذا وجدت			
	- بداية - متى بدأت الأعراض؟			
	- معرفة اذا كانت البداية حادة أم تدريجية؟			
	- المدة			
	- معرفة العرض هل دائماً أم أنه يأتي ويذهب			
(د) تاريخ الحمل الحالي	سؤال الام الحامل :			
	- سؤال الام نوع الحمل			
	- كيف تم تأكيد الحمل؟			
	- اختبار البول بالمنزل عن طريق الشريط			
	(hCG)- اختبار البول والدم بالمعمل ل			
	- الفحص بالموجات فوق الصوتية			
	(LMP)- تاريخ آخر دورة شهرية ()			
	(EDD)- تقدير التاريخ المتوقع للولادة)			
	- هل تناولت الام الحامل حمض الفوليك خلال الثلث الأول من الحمل؟			
	- هل اجرت فحوصات أخرى أثناء الحمل؟ (اشعة سينية او غيرها)			
	-التأكد من احساس الام الحامل بحركة الجنين - عادة ما تحدث (18-20)من عمر الحمل			
(هـ)- التاريخ الولادي السابق:-	سؤال الام الحامل بغرض :			
	- التعرف على عدد مرات الولادات بغض النظر عن النتيجة			

			- التعرف على تفاصيل كل حمل بمفرده: - تاريخ الولادة - مدة الحمل - مضاعفات الحمل اذا وجدت -مفرد ام توأم - نوع الولادة (طبيعي ، قيصري) -الولادة طبيعية ام متعسرة -مكان الولادة -هل الطفل صرخ مباشرة بعد الولادة ام لا -ذكر ام انثى -وزن الطفل عند ولادته - معرفة تاريخ اخذ جرعات التطعيم - حالة الطفل الصحية الان	
			- التعرف اذا كان هنالك اجهاض - التعرف اذا كان هنالك خارج الرحم -التعرف اذا كان هنالك حمل عنقودي	
			سؤال الام الحامل :	(و)- تاريخ امراض النساء:-
			-هل تم اخذ عينة من الرحم - متى؟ ما النتيجة؟ -هل توجد أي اضطرابات في الدورة الشهرية -مشاكل وعلاجات أمراض النساء السابقة - معرفة الأمراض المنقولة جنسيا اذا وجدت . - معرفة اذا كان هنالك أي نزيف رحمي -معرفة وسائل منع الحمل الحالية -جراحة نسائية :هل تمت أي عملية جراحية في الرحم من قبل	
			سؤال الام الحامل اذا كانت تعاني من :	(ز)- التاريخ الطبي السابق
			- اضطرابات الغدة الدرقية - السكري - الصرع - ارتفاع ضغط الدم - القلب - امراض الكلى - تاريخ أي دخول المستشفى سابقا- متى ولماذا؟ - تاريخ اخذ التحصينات في فترة الإنجاب	
			سؤال الام الحامل بغرض :	(ك)- التاريخ الدوائي
			- التأكد من عدم وجود عقار غير آمن - معرفة الادوية المستعملة ان وجدت - التأكد من عدم وجود حساسية لأى عقار	
			هل المرأة الحامل تعاني من:-	(ل)- تاريخ العائلة
			- اضطرابات الغدة الدرقية - السكري - الصرع - ارتفاع ضغط الدم - القلب	

			- أمراض الكلى
م)- التاريخ الاجتماعي			التعرف على اذا كانت المرأة الحامل تتعاطى كل من:
			-التدخين
			-الكحول
			- المخدرات
ن)- الوضع المعيشي			سؤال الام الحامل لمعرفة السكن وحالته الصحية :
			- منزل او شقة .
			- هل السكن اجار او تملك .
			- من يعيش مع المرأة الحامل في السكن ؟
			التأكد من وجود اقرب مركز صحي لمتابعة الحمل واقرب مستشفى للولادة .
			هل توجد حيوانات اليفة بالسكن مع المرأة الحامل .
			هل توجد حيوانات اليفة بالسكن مع المرأة الحامل هل يوجد أي نوع من العنف داخل الاسرة .
			هل المرافقين مصابين باي امراض معدية . -

نموذج (2)

لم تطبق	لم يتم تطبيقه ا كاملا	تم تطبيقها كاملا	الاجراء	2-الفحص البدني
				أ- اخطار المرأة الحامل بتطبيق الفحص البدني:
			غسل الأيدي	
			احضار ادوات الفحص البدني كاملة بجانب سرير الكشف	
			اخطار المرأة الحامل بأهمية افرغ المثانة	
			مساعدة المرأة الحامل للاستلقاء على ظهرها	
			مراعاة خصوصية الام الحامل	
				ب- فحص المظهر العام:
			السلوك / القلق / التوتر	
			مستوى النظافة	
			نمط الكلام والتعبير	
			الشحوب	
			الازرقاق	
			تورم	
				ج- قياس العلامات الحيوية :
			قياس درجة حرارة الجسم وتقييمها .	
			قياس ضغط الدم وتقييمه .	
			حساب النبض في دقيقة كاملة	
				د- قياس الطول والوزن
			قياس :طول الام الحامل وتسجيله	
			قياس :وزن الام الحامل وتقييمه	
				و- فحص الراس والرقبة
			بالنظر: مراقبة تضخم الغدة الدرقية.	
			بالنظر: تقيم تضخم الغدة الليمفاوية بالرقبة .	
			بالنظر:فحص العيون لأى افرزات او اصفرار او شحوب .	

			بالنظر :فحص لأي علامات غير طبيعية .
			فحص الانف بالضوء :وسؤال الام الحامل اذا كان هناك احتقان او رعاف او غيره .
			فحص الأذن :لخروج افرازات او غيرها .
			بالجس :على الغدد الليمفاوية على الرقبة لمعرفة اذا كانت متضخمة
ك- فحص الثديين			
			secondary areola بالنظر :ملاحظة حجم وتناسق الثديين، و شكل الحلمة Montgomery and Montgomery
			بالجس: استعمال راحة اليد والجس في شكل دوائر (للثديين)من خارج الثدي الى الداخل ثم ضغط الحلمة للتعرف على الافرازات التي تخرج ومعرفة حالة الحلمة اذا كان بها تشققات وغيرها من الآفات الجلدية .
			بالجس: استعمال اليد بالجس على الغدد الليمفاوية من الثديين الى الابطين لمعرفة اذا كان هناك تضخم بالغدد .
ل- فحص البطن للحمل			
			بالنظر :ملاحظة علامات الحمل – حجم البطن- وملاحظة حركة الجنين .Lenya nigra, gravidarum, striae
			باليد بغرض تحسس اعلى قمة للرحم (fundal height الجس)
			قياس :ارتفاع الرحم بواسطة شريط القياس لمعرفة عمر الحمل
			الجس :بوضع اليد بين اعلى قمة للرحم لمعرفة الجزء الموجود من الجنين بداخلة (حسب مواصفات جسم الجنين)
			(lie الجس :على جانبي الرحم لتحديد وضع الجنين
			الجس :على منطقة الحوض لمعرفة الجزء الذي يشغل الحوض ومعرفة دخول الجزء المتقدم من الجنين في عظام حوض للام .
			السمع : لنض الجنين وتقييمه في دقيقة كاملة .
			جس :القدمين او اعلى منطقة الكعب للتورم والنبض
ن-الفحوصات المخبرية الروتينية			
تحليل الدم :			
			للحمل خلال الاسبوعين من انقطاع الدورة الشهرية
			للهموكلوبيين لمعرفة الأنيميا
			(Rh لمعرفة فصيلة الدم)
			للسكري
			لليرقان
			للبروتين
			للأمراض المنقولة جنسيا
تحليل البول:			
			للحمل
			لليرقان
			للسكري
			للبروتين
			البول عمومي
3- التدخل التمريضي			
			التطعيم ضد التيتانوس .
			التأكد من تناول الحامل الفوليك والحديد .
4- التنقيف الصحي			
			التنقيف الصحي للحامل لما يأتي :-
			-الاهتمام والحرص على الزيارات الدورية في الموعد المحدد
			-التغذية الجيدة اثناء الحمل و الإكثار من شرب الماء يومياً

			- النظافة الشخصية وتجنب العدوى .
			- عدم تناول أي أدوية إلا بعد استشارة الطبيب .
			- الابتعاد عن الانفعالات الحادة أو الحزن الشديد أو الصدمات
			- الحذر عن السفر لمسافات طويلة .
			- ممارسة الرياضة .
			- ارتداء الملابس الفضفاضة المريحة .
			- عدم رفع الأشياء الثقيلة عن الأرض أو حملها .
			- تجنب التدخين
			- تجنب ارتداء الأحذية العالية .
			- التعرض للشمس والهواء النقي .
			- تجنب التعرض للأشعة الضارة .
			تثقيف الام بعلامات الخطورة اثناء فترة الحمل
			- اعداد التديين للإرضاع وتعليم الام بأهمية الرضاعة الطبيعية للطفل .
			- اعداد الام الحامل للولادة (مكان الولادة ، تحضير مستلزمات الولادة وغيرها)
			- تعليم الام كيفية متابعة حركة الجنين في المنزل .
			- تعليم الأم الحامل العناية بمولودها ورعايته وتقديم العناية المثالية له ضمن الامكانيات المتوافرة -

Appendix (3)

Program schedule

Day+ Time	Educational Objectives	Content	Learning Strategy			Evaluation
			Teaching Strategy		Learning Activity	
			Methods of teaching	Learning		
<p>Day 1</p> <p>10:00 – 12:59 00 AM</p> <p>1:00 – 1:30 PM (break)</p> <p>1:32 – 3:30 PM</p>	<p>By the end of the lecture the midwife will be able to know the following:</p> <p>Health Center Meaning of- -Midwifery and its role in providing health care for pregnant women -How pregnancy occurs and the causes of physiological changes that affect the pregnant woman -Normal signs and symptoms of pregnancy and who we confirm the pregnancy .</p> <p>-Treatment of simple complaints of pregnant mother</p>	<p>1-Definition of health center and aim of antenatal car .</p> <p>2-Definition midwives and her roles, antenatal care</p> <p>3-Who pregnant occur and causes of physiological changes during pregnancy</p> <p>4- Blood and urine investigation to confirm positive pregnancy .</p> <p>5- signs and symptoms of pregnancy</p> <p>6- Effect of hormone in pregnant women and who we manage the simple complain .</p>	Lecture & discussion	<p>Slides show +Handout</p> <p>Slides show +Handout</p>	<p>Participate by asked and answer questions</p> <p>Participate by asked and answer questions</p>	Feedback in discussion
<p>Day 2</p> <p>8:00 – 10:00AM</p> <p>10 :00- 10:30AM (break)</p>	<p>By the end of the lecture the midwife will be able to know the following</p> <p>-Number of pregnant women visits and role</p>	<p>1-Aim and important od early start visiting for pregnant women</p> <p>2- number of pregnant women visit .</p> <p>3- Taking history .</p> <p>4- Physical examination for pregnant women .</p> <p>5- Measuring weight and height for pregnant women .</p> <p>6- Routine investigation</p>	lecture + video	<p>Slides show +Handout</p> <p>Slides</p>	<p>Participate by asked and answer questions</p>	

<p>11:00 – 2:00PM</p> <p>2:00 -2:15PM (break)</p> <p>2:17-4:00PM</p>	<p>General physical examination from head to toe</p> <p>- Complete on General physical examination from head to toe</p>	<p>during pregnancy .</p> <ul style="list-style-type: none"> - Who midwives receive pregnant women - Evaluation of General appearance - Examination neck of hand Examination of Head and. - Examination of respiratory system - Examination of gastrointestinal system - Examination of Reproductive system - Examination of legs - Taking vital signs - Who measure weight and height <p>Continue</p>	<p>practical</p>	<p>show اكتب بالمعادلة هذا</p>	<p>Participate by asked and answer questions</p>	
<p>Day 3</p> <p>8:00-10:00AM</p> <p>10:00 – 10:30AM (break)</p> <p>10:32-12:29 pm</p> <p>12:30 – 1:00PM (break)</p> <p>1:00 – 3:00 PM</p>	<p>Health education for pregnant women</p> <p>Obstetric examination</p> <p>Obstetric examination</p> <p>Obstetric examination</p>	<p>Guidance to the pregnant mother during pregnancy</p> <p>Fundal level and fundal grip for determine which occupied of fundus.</p> <ul style="list-style-type: none"> - Later grip - pelvic grip- - Calculate and evaluate the fetal heart rate sound. -determine the lie position and presenting part <p>Continue on practical</p> <p>Complete the practical of obstetric examination</p>	<p>lecture</p> <p>practical</p> <p>Practical</p> <p>practical</p>	<p>Slides show +Handout</p> <p>Slides show +Handout</p>	<p>Participate by asked and answer questions</p> <p>Participate by asked and answer questions</p>	

<p>11:00 – 2:00PM</p> <p>2:00 -2:15PM (break)</p> <p>2:17-4:00PM</p>	<p>examination from head to toe</p> <p>- Complete on General physical examination from head to toe</p>	<ul style="list-style-type: none"> - Who midwives receive pregnant women - Evaluation of General appearance - Examination neck of hand Examination of Head and. - Examination of respiratory system - Examination of gastrointestinal system - Examination of Reproductive system - Examination of legs - Taking vital signs - Who measure weight and height 		<p>Slide show اكتبالم عادلّة هنا.</p>	<p>ate by asked and answer questions</p>	
<p>Day 3</p> <p>8:00-10:00AM</p> <p>10:00 – 10:30A M - (break)</p> <p>10:32-12:29 pm</p> <p>12:30 – 1:00PM (break)</p> <p>1:00 – 3:00 PM</p>	<p>Health education for pregnant women</p> <p>Obstetric examination</p> <p>Obstetric examination</p> <p>Obstetric examination</p>	<p>Guidance to the pregnant mother during pregnancy</p> <p>Fundal level and fundal grip for determine which occupied of fundus.</p> <ul style="list-style-type: none"> - Later grip - pelvic grip- - Calculate and evaluate the fetal heart rate sound. -determine the lie position and presenting part <p>Continue on practical</p> <p>Complete the practical of obstetric examination</p>	<p>lecture</p> <p>practical</p> <p>Practical</p> <p>practical</p>	<p>Slide show +Handout</p> <p>Slide show +Handout</p>	<p>Participate by asked and answer questions</p> <p>Participate by asked and answer questions</p>	

اقرار

اقر وأوافق أنا السيدة اعمل قابلة بمركز صحي
.....بالمشاركة في البحث العلمي للدكتورة/
ثريا إدريس الحسن فضل الله بعنوان (ما مدى فائدة البرنامج التدريبي للقابلات حول
رعاية الحوامل بالمراكز الصحية بمحلية شندي).
وعلى هذا أوقع القابلة /.....