Assessment of Antenatal Care Services in Alshokaba Shaaddin Health Center, South Gezira Locality, Gezira State, Sudan (2013)

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September, 2014
Assessment of Antenatal Care Services in *Alshokaba Shaaddin Health Center, South Gezira Locality, Gezira State, Sudan* (2013)

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Date : September, 2014
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Date of examination: September, 2014
Dedication

To:

My dear family members especially my mother and father who are taking care of me since I was a foetus and till now a man of 41 years married with 2 sons and one daughter, to my wife and my children, who always encourage and support me.
Acknowledgement

All praises are for Allah and no one is equal to him.

My deepest gratitude to Prof. Magda Alhadi Ahmed, professor of Community and Family Medicine, University of Gezira what so ever she has presented me from her advisory knowledge. She did not hesitate to devote her knowledge and time for me, and giving her arguments in this field.

Now I am thankful to the awesome family physician Dr. Abd ElNasir Ahmed Abu Zaid (the family medicine program academic consultant) for his advisory effort that made this work come to true, and who always I’m proud to be a student of him asking God in some day he may be proud of me as a student of him.

I would like to express my special thanks to the staff and the patients of Alshokaba Health Center for the help and assistance that without them this study could not be achieved.

I awe adept of thanks to my colleagues for their continues help in many ways.
Assessment of Antenatal Care Services in Alshokaba Shaaddin Health Center, South Gezira Locality, Gezira State, Sudan (2013)

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Abstract

Antenatal care is a type of preventative care with the goal of providing regular check-ups that allow doctors or midwives to treat and prevent potential health problems throughout the course of the pregnancy while promoting healthy lifestyles that benefit both mother and child. This study was conducted to assess the services provided for pregnant women at Alshokaba health center for antenatal care service in term of structure and outcome, by assessing the availability of the well-trained staff (Doctors, nurses, midwives, lab technicians, nutrition and immunization staff) and the availability of complete instruments, drugs, outline the associated factors that may affect utilization of antenatal care and also to compare the services provided for pregnant women to adopted international guidelines, finally to identify gaps in the services to come up with a plan for improvement.

A cross-sectional Observational study health center based study was performed at Alshokaba health center – South Gezira Locality, Gezira state – Sudan, by reviewing all pregnant women who attended the center seeking antenatal care and agreed to participate. The total sample size was 130 pregnant women, based on comprehensive sampling. This study came with the following findings; contact with a health professional about antenatal care had taken place for more than two-thirds of women (78.46%) by the twelfth week of pregnancy, and most of the women (70%) were happy about the antenatal checkups they had, and (88.46%) thought that the number of visits is the same or more than they expected, (76.16%) of the women wait for less than an hour before being seen by a doctor, and (62.31%) of them are happy with the time they waited, Furthermore, more than half the women (53.08%) reported that they had received enough or too much information about looking after their own health or about the laboratory tests they had done and two-thirds of the women (65.39%) answered that they had received enough or too much information about treatments they may need during pregnancy and (70.77%) of them reported that they received enough or too much information about the labour, Also, (71.54%) of the women will come back to this center in coming pregnancies, and (80.77%) of them will recommend it for a relative or a friend for antenatal care, the majority of the women (90.76%) were very satisfied or satisfied with the antenatal care services they had in this center, This study recommend that although it is doing a great services for the population in the area, the (ANC) unit in this center should be improved by more training for the working staff and increasing the working hours to serve a larger number of pregnant women and health care seekers, Also, improving the quality of the laboratory services and the availability of the antenatal care educational materials is essential.
تقييم الرعاية السابقة للولادة بمراكز صحية الشكابة شاع الدين، ولاية الجزيرة، السودان (2013)

النذر عبد الله عبد الماجد علي

الرعاية السابقة للولادة تعني تقديم نوع من الخدمات الوقائية للحوامل عن طريق المتابعة بالزيارات الدورية لهن مما يمكن الأطباء أو القابلات من علاج مشاكل صحية محتملة أو الوقاية منها خلال فترة الحمل، وذلك بتهيئة ظروف حياتية مناسبة لصحة الأم والجنين. أجريت هذه الدراسة لتقديم الخدمات الصحية المقدمة للنساء الحوامل في مركز صحي الشكابة شاع الدين - خدمة الرعاية السابقة للولادة على مستوى نوعية الخدمة والنتائج، ومدى توافر العاملين المدربين تدريبا جيدا (الأطباء والممرضات والقابلات وفنيي المختبر والتهوية والпитار، ونقد الأدوية) وتوافر المرافق اللازمة بالمركز. هذه الدراسة قطعية، مبتصة على مركز صحي الشكابة شاع الدين، ولاية الجزيرة - السودان، على أساس العينة الشاملة، وفاضت هذه الدراسة مع النتائج التالية: التواصل مع وحدة الرعاية الحملية حول الرعاية السابقة للولادة حدث لأكثر من ثلثي النساء (78.46%) بحلول الأسبوع الثاني عشر من الحمل، ومعظم النساء (70%) كن سعيدات بشأن فحوص ما قبل الولادة لبدين، (يعتبر 88.46%) أن عدد الزيارات المطلوبة هو نفسه أو أكثر مما يوقع، (76.16%) من النساء ينتظرن أقل من ساعة قليلة قبل أن يرافقهن الطبيب، و (62.31%) منهن راضيات عن وقت الانتظار، (53.08%) منهن راضيات عن رعاية صحية، (65.39%) منهن راضيات عن الخدمات، (71.54%) منهن راضيات عن رعاية الصحة، (80.77%) منهن راضيات عن الولادة، (71.54%) من النساء سوف يتابعن هذا المركز في حالات الحمل المقبلة، و (8.77%) منهن سوف ينتظرن بعضها أخرى تابعة. تقوم هذه الدراسة بناءً على المعلومات المقدمة للنساء وذلك تلقها على الهدف من الخدمات، وتلقيها وحيدة، و تقديم الخدمات المقدمة للنساء الحوامل في مركز صحي الشكابة شاع الدين - خدمة الرعاية السابقة للولادة. وكانت غالبيتهم (90.76%) راضيات جدا أو راضيات عن خدمات الرعاية قبل الولادة التي تلقينها في هذا المركز، توصي هذه الدراسة بأنه على الرغم مما تقوم به من خدمات جهية للتذكير في المنطقة، ينبغي تحسين وحدة الرعاية والتمارين في هذا المركز من خلال المدربين تدريبا جيدا وتوفر المواد التعليمية الخاصة بالرعاية قبل الولادة أمر ضروري.

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Chapter One
Introduction and literature Review

Introduction:

Antenatal care:

Antenatal care is a type of preventative care with the goal of providing regular check-ups that allow doctors or midwives to treat and prevent potential health problems throughout the course of the pregnancy while promoting healthy lifestyles that benefit both mother and child. During check-ups, women will receive medical information over maternal physiological changes in pregnancy, biological changes, and prenatal nutrition including prenatal vitamins. Recommendations on management and healthy lifestyle changes are also made during regular check-ups. The availability of routine prenatal care has played a part in reducing maternal death rates and miscarriages as well as birth defects, low birth weight, and other preventable health problems.

Prenatal care generally consists of:

- monthly visits during the first two trimesters (from week 1–28)
- fortnightly visits from 28th week to 36th week of pregnancy
- weekly visits after 36th week until delivery (delivery at week 38–42)
- Assessment of parental needs and family dynamic

Prenatal Examinations

At the initial antenatal care visit and with the aid of a special booking checklist the pregnant women become classified into either normal risk or high risk.

Prenatal diagnosis or prenatal screening (note that "Prenatal Diagnosis" and "Prenatal Screening" refer to two different types of tests) is testing for diseases or conditions in a fetus or embryo before it is born. Obstetricians and midwives have the ability to monitor mother's health and prenatal development during pregnancy through series of regular check-ups.

Physical examinations generally consist of:

- Collection of (mother's) medical history
- Checking (mother's) blood pressure
- (Mother's) height and weight
- Pelvic exam
- Doppler fetal heart rate monitoring
- (Mother's) blood and urine tests
- Discussion with caregiver

Ultrasound Obstetric ultrasounds are most commonly performed during the second trimester at approximately week 20. Ultrasounds are considered relatively safe and have been used for over 35 years for monitoring pregnancy. Among other things, ultrasounds are used to:

- Diagnose pregnancy (uncommon)
- Check for multiple fetuses
- Assess possible risks to the mother (e.g., miscarriage, blighted ovum, ectopic pregnancy, or a molar pregnancy condition)
- Check for fetal malformation (e.g., club foot, spina bifida, cleft palate, clenched fists)
- Determine if an intrauterine growth retardation condition exists
- Note the development of fetal body parts (e.g., heart, brain, liver, stomach, skull, other bones)
- Check the amniotic fluid and umbilical cord for possible problems
- Determine due date (based on measurements and relative developmental progress)\(^1,2\)

Generally an ultrasound is ordered whenever an abnormality is suspected or along a schedule similar to the following:

- 7 weeks — confirm pregnancy, ensure that it's neither molar or ectopic, determine due date
- 13–14 weeks (some areas) — evaluate the possibility of Down Syndrome
- 18–20 weeks — see the expanded list above
- 34 weeks (some areas) — evaluate size, verify placental position

Antenatal care refers to the regular medical and nursing care recommended for women during pregnancy.\(^3\) Prenatal care is a type of preventative care with the goal
of providing regular check-ups that allow doctors or midwives to treat and prevent potential health problems throughout the course of the pregnancy while promoting healthy lifestyles that benefit both mother and child. During check-ups, women will receive medical information over maternal physiological changes in pregnancy, biological changes, and prenatal nutrition including prenatal vitamins.

Recommendations on management and healthy lifestyle changes are also made during regular check-ups. The availability of routine prenatal care has played a part in reducing maternal death rates and miscarriages as well as birth defects, low birth weight, and other preventable health problems.

Prenatal care generally consists of:

- monthly visits during the first two trimesters (from week 1–28)
- fortnightly from 28 to week 36 of pregnancy
- weekly after week 36 (delivery at week 38–40)\(^1,2\)

Standards:

"Having a baby is one of the most important times in a woman's life and healthcare professionals wanted to make sure this is a good and safe experience. The majority of women will not experience any complications during their pregnancy, but serious problems such as miscarriage, fetal growth restriction or preterm birth unfortunately still occur. This new quality standard identifies 12 key priority areas of routine care that healthy women should expect to receive during their pregnancy, including screening tests for complications. It includes a set of measures to enable commissioners and providers to track ongoing achievement against this standard.\(^3\)

"The new quality standard also firmly places women at the centre of decision making about their care, ensuring they are provided with up to date information to enable them to make informed decisions in partnership with healthcare professionals about their care and treatment."

Care throughout pregnancy can have a significant and positive effect on the wellbeing of the woman and the outcomes for her and her baby. This standard will contribute to safer and healthier pregnancies for women, and we fully endorse it. We look forward to its widespread implementation."
The quality standard on antenatal care consists of 12 statements including:

- Pregnant women are supported to access antenatal care, ideally by 10 weeks.
- Pregnant women are cared for by a named midwife throughout their pregnancy.
- Pregnant women have a complete record of the minimum set of antenatal test results in their hand-held maternity notes.
- Pregnant women with a body mass index of 30 kg/m2 or more at the booking appointment are offered personalized advice from an appropriately trained person on healthy eating and physical activity.
- Pregnant women who smoke are referred to an evidence-based stop smoking service at the booking appointment.
- Pregnant women are offered testing for gestational diabetes if they are identified as at risk of gestational diabetes at the booking appointment.
- Pregnant women at high risk of pre-eclampsia at the booking appointment are offered a prescription of 75 mg of aspirin to take daily from 12 weeks until at least 36 weeks.
- Pregnant women at intermediate risk of venous thromboembolism at the booking appointment have specialist advice provided about their care.
- Pregnant women at high risk of venous thromboembolism at the booking appointment are referred to a specialist service.
- Pregnant women are offered fetal anomaly screening in accordance with current UK National Screening Committee programmes.
- Pregnant women with an uncomplicated singleton breech presentation at 36 weeks or later (until labour begins) are offered external cephalic version.

Nulliparous pregnant women are offered a vaginal examination for membrane sweeping at their 40- and 41-week antenatal appointments, and parous pregnant women are offered this at their 41-week appointment.\(^4\)
Literature Review:

Prenatal or antenatal development is the process in which a human *embryo* or *fetus* (or *foetus*) germinates during pregnancy, from fertilization until birth. Often, the terms fetal development, or *embryology* are used in a similar sense.

After fertilization the *embryogenesis* starts. In humans, when embryogenesis finishes, by the end of the 10th week of *gestational age*, the precursors of all the major organs of the body have been created.

Aims of Antenatal care:

To prevent, detect and manage those factors that adversely affect the health of baby.

To provide advice, reassurance, education and support for women and baby.

To deal with the major ailments of the pregnancy.

To provide general health screening.\(^5\)

Classification of antenatal care:

a) Shared care: provided jointly by maternity hospital team, a general practitioner (GP) & community midwives.

b) Community based care: provided by community midwives with variable involvement of GPs in this type of care (for low risk women).

c) Hospital based care: structured programme of visits to a hospital ANC which may well be highly specialized.

{1} THE BOOKING VISIT

The degree of risk in a pregnancy is determined by the use of repeated history taking, physical examination & investigations. The booking visit can be carried out in hospital or in the community. If risk factor is identified, the woman is likely to be referred to hospital based or shared care.

Before the risk assessment begins, the pregnancy should be confirmed & EDD should be calculated.
(A) Confirmation of pregnancy: the symptoms of pregnancy combined with a positive urinary or serum pregnancy test usually sufficient to confirm pregnancy. Early US scan can both confirm & accurately date pregnancy.

Fetal heart can be heard with Doppler devise from approximately 12 weeks onwards

(B) Dating the pregnancy: a pregnancy can be dated either by using Naegle's rule (states that the EDD is calculated by adding 7 days to the 1st day of the LMP & taking away 3 months. This rule assume a 28 days menstrual cycle with an accurate LMP.

Dating scan when the LMP is uncertain or there is menstrual irregularity, a dating scan in the 1st or early in the 2nd trimester should be considered.

BENEFITS OF DATING SCAN

(1) Accurate dating of pregnancies in women with menstrual irregularity on unreliable LMP.

(2) Reduce incidence of induction of labour for prolonged pregnancy.

(3) Maximizing the potential for serum screening to detect fetal anomalies.

(4) Early detection of multiple pregnancy.

(5) Detection of otherwise asymptomatic failed intrauterine pregnancy.

(6) Detection of early pregnancy complication as ectopic or molar pregnancy.

Before 16 weeks gestation, there is minimal variations in fetal size between individual pregnancies, so the fetal measurements (CRL, BPD, FL) can be plotted on standard fetal biometry chart with accurate assessment of GA.

Beyond 20 weeks gestation, the effects of genes & environment will cause significant variability in fetal size. Dating a pregnancy by US scan therefore become progressively less accurate as the gestation advances.

(C) THE BOOKING HISTORY

1- Age: women at the extremes of reproductive ages at greater risk of certain pregnancy complications(e.g. fetal chromosomal abnormality in older women).
2- Race: specific racial groups carry higher risks of medical conditions (e.g., sickle cell anemia & thalassemia).

3- Past medical history: pregnant women with other health problems are often managed jointly by obstetricians & physicians in high-risk clinics. The disease and its treatment may adversely affect pregnancy and fetus (e.g., congenital heart disease, epilepsy). The pregnancy itself may cause improvement (e.g., migraine) or deterioration in the co-existing medical condition (e.g., renal failure).

4- Past obstetrical history: pregnancy complications of most kinds carry a recurrence risk, e.g., gestational DM, cholestasis of pregnancy, details of previous labours and deliveries may also determine choices in the future (e.g., previous C/S).

5- Previous gynecological history: a previous history of infertility or recurrent miscarriage may affect management during pregnancy and labour. A history of gynecological surgery may also be important. A cone biopsy may cause cervical incompetence or stenosis.

6- Family history: a number of medical conditions with familial tendencies may complicate the pregnancy (e.g., DM, HTN, thromboembolic disease and mental handicap).

7- Social history: smoking, alcohol and substance abuse may adversely affect pregnancy. Social deprivation and domestic violence associated with poor pregnancy outcome.

D) THE BOOKING EXAMINATION

For most healthy women without medical complication, the booking examinations should include the following:

I. BP measurement.
II. Abdominal examination to record the size of the uterus.
III. Recognition of any abdominal scars.
IV. Measurement of height and weight for calculation of BMI. Women with low BMI are at more risk of low birth weight and IUGR. Obese women are at greater risks of gestational DM, preeclampsia, need for C/S and anesthetic difficulties.
Thorough examination must be carried out if there are symptoms of concern, e.g., cardiovascular examination when there is dyspnea or chest pain.

E) THE BOOKING INVESTIGATIONS

1- Full blood count: this screens for anemia and thrombocytopenia

2- Blood group and Rh.

3- Rubella screening: rubella non immune women should be advised to avoid contact with affected persons & advised for immunization after the current pregnancy.

4- Hepatitis B: the presence of surface Ag. or 'e' Ag. represent recently affected or carrier status. A baby born to a hepatitis B carrier should be actively and passively immunized. The health provider should take precautions when dealing with body fluids.

5- HIV screen: the department of health guidelines now recommend that all pregnant women should be offered an HIV test at booking.

6- Syphilis

7- Hemoglobin study: for women who have an ethnic background or family history.

8- Screening for gestational DM: at booking but more usefully performed at 28 weeks, when the metabolic changes of GDM become more detectable.

9- Other routine investigations: cervical smear and vaginal swab are not routine but indicated when the smear is overdue, the pt. is unlikely to attend postnatally, when there is abnormal symptoms as postcoital bleeding or abnormal cervix on examination.

(2) SCREENING OF FETAL ABNORMALITIES

This is a routine aspect of ANC

(a) Screening for Down's syndrome: nuchal translucency US scan (11-13 weeks) and serum screening test (15-19 weeks).

(b) NTD (e.g., anencephaly and spina bifida) screening: by maternal serum alpha fetoprotein (15-19 weeks).
(c) Anomaly scan: detailed US scan (19-22 weeks) for structural congenital abnormality.

{3} FOLLOW UP VISITS

The precise no. of visits is a contentious point & should be tailored to the individual, the minimum number of visits recommended by the RCOG is five, occurring at 12, 20, 28-32, 36 and 40-41 weeks. A common pattern of ANC adopted in their first pregnancy is (4-weekly visits from 20 weeks until 32 weeks, followed by fortnightly visits from 32-36 weeks of pregnancy and weekly visits thereafter.

THE CONTENT OF FOLLOW-UP VISITS

1) General questions regarding maternal well-being.

2) Enquiry regarding fetal movement (from 24 weeks).

3) BP reading.

4) Urine analysis: for protein, blood and glucose.

5) Examination for oedema: common in pregnancy (in 80% of normal pregnancies) and insensitive marker for preeclampsia.

6) Abdominal palpation for fundal height: if serially done, it can detect abnormality in fetal growth & in liquor volume.

7) Auscultation of fetal heart: for reassurance.

8) A full blood count and red cell antibodies screening is repeated at 28 and 36 weeks.

9) Screening for gestational DM: at 28 weeks of gestation.

10) From 36 weeks, fetal lie, presentation and engagement should be assessed to decide the mode of delivery.

11) At 41 weeks of pregnancy, discussion regarding the merits of induction of labour should occur because of increase in perinatal morbidity and mortality.6

Growth rate7

The growth rate of an embryo and infant can be reflected as the weight per gestational age, and is often given as the weight put in relation to what would be
expected by the gestational age. A baby born within the normal range of weight for that gestational age is known as appropriate for gestational age (AGA). An abnormally slow growth rate results in the infant being small for gestational age, and, on the other hand, an abnormally large growth rate results in the infant being large for gestational age. A slow growth rate and preterm birth are the two factors that can cause a low birth weight. Low birth weight (below 2000 grams) can ultimately increase the likelihood of schizophrenia by almost four times.  

The growth rate can be roughly correlated with the fundal height which can be estimated by abdominal palpation. More exact measurements can be performed with obstetric ultrasonography.

Factors influencing growth rate

Poverty

Poverty has been linked to poor prenatal care and has been an influence on prenatal development. Women in poverty are more likely to have children at a younger age, which results in low birth weight. Many of these expecting mothers have little education and are therefore less aware of the risks of smoking, alcohol, and drugs - other factors that influence the growth rate of a fetus. Women in poverty are more likely to have diseases that are harmful to the fetus.

Mother's age

Women between the ages of 16 and 35 have a healthier environment for a fetus than women under 16 or over 35. Women between this age gap are more likely to have fewer complications. Women over 35 are more inclined to have a longer labor period, which could potentially result in death of the mother or fetus. Women under 16 and over 35 have a higher risk of preterm labor (premature baby), and this risk increases for women in poverty, African Americans, and women who smoke. Young mothers are more likely to engage in high risk behaviors, such as using alcohol, drugs, or smoking, resulting in negative consequences for the fetus. Premature babies from young mothers are more likely to have neurological defects that will influence their coping capabilities - irritability, trouble sleeping, crying, etc. There is a risk of mental retardation for infants over the age of 40 - down syndrome. Teen mothers and mother
over 35 are more exposed to the risks of miscarriages, premature births, and birth defects.

Drug use

Eleven percent of fetus's are exposed to illicit drug use during pregnancy. Maternal drug use occurs when drugs ingested by the pregnant woman are metabolized in the placenta and then transmitted to the fetus. When using drugs (narcotics), there is a greater risk of birth defects, low birth weight, and a higher rate of death in infants or stillbirths. Drug use will influence extreme irritability, crying, and risk for SIDS once the fetus is born. The chemicals in drugs can cause an addiction in the babies once they are born. Marijuana will slow the fetal growth rate and can result in premature delivery. It can also lead to low birth weight, a shortened gestational period and complications in delivery. Heroin will cause interrupted fetal development, stillbirths, and can lead to numerous birth defects. Heroin can also result in premature delivery, creates a higher risk of miscarriages, result in facial abnormalities and head size, and create gastrointestinal abnormalities in the fetus. There is an increased risk for SIDS, dysfunction in the central nervous system, and neurological dysfunctions including tremors, sleep problems, and seizures. The fetus is also put at a great risk for low birth weight and respiratory problems. Cocaine use results in a smaller brain, which results in learning disabilities for the fetus. Cocaine puts the fetus at a higher risk of being stillborn or premature. Cocaine use also results in low birth-weight, damage to the central nervous system, and motor dysfunction.

Smoking and Nicotine

When a mother smokes during pregnancy the fetus is exposed to nicotine, tar, and carbon monoxide. Nicotine results in less blood flow to the fetus because it constricts the blood vessels. Carbon monoxide reduces the oxygen flow to the fetus. The reduction of blood and oxygen flow results in stillbirth, low birth weight, and ectopic pregnancy. There is an increase of risk of sudden death syndrome (SIDS) in infants. Nicotine also increases the risk for miscarriages and premature births or infant mortality. There has been a link from smoking during pregnancy that led to asthma in childhood. Low birth weight and premature births can also increase the risk of asthma if a mother smoked during pregnancy because of the effects on the respiratory system of the fetus.
Diseases

If a mother is infected with a disease, the placenta cannot filter out the virus carriers and infect the fetus. Babies can be born with venereal diseases transmitted by the mother.

Mother's diet and physical health

An adequate nutrition is needed for a healthy fetus. This is because of the greater importance of certain systems in the human body over others as stated in the disposable soma theory. When there is inadequate nutrition during the developmental stages of the fetus, less energy is put into forming somatic structures while more energy is invested in the reproductive structures of the fetus. This is a characteristic of evolutionary biology and fetal development since without a capable reproductive system, once the child reaches maturation it would be unable to produce offspring. However, it is possible for the child to survive to reproductive age with a slightly lower birth weight than normal. This trade-off for a completely developed reproductive structure for a lower birth weight is the reason why the lack of nutrition causes a lower birth weight in newborns. A lack of iron results in anemia in the fetus, the lack of calcium can result in poor bone and teeth formation, and the lack of protein can lead to a smaller fetus and mental retardation.

Mother's prenatal depression

A study found that mother's prenatal depression was associated with adverse perinatal outcomes such as slower fetal growth rates. It appears that prenatal maternal cortisol levels play a role in mediating these outcomes.  

Environmental toxins

Toxins lead to higher rates of miscarriage, sterility, and birth defects. Toxins include fetal exposure to lead, mercury, and ethanol or hazardous environments.

Low birth weight

Low birth weight increases an infant’s risk of long-term growth and cognitive and language deficits. It also results in a shortened gestational period and can lead to prenatal complications.
**Previous studies:**

A study with the title: Utilization of antenatal care services by Sudanese women in their reproductive age, conducted to describe the current antenatal care situation in Sudan with regard to routine utilization of antenatal health care services and application of tetanus toxoid (TT) vaccination in urban and rural areas.

The study was conducted in Khartoum State, Sudan, between August and December 2002. Interviews were held among a representative sample of 400 married women aged 15-49 years from both urban and rural localities. Utilization of antenatal care and TT vaccine for pregnant women were used as dependent variables while socio-economic status, place of resident, women's education, quality of care and walk-time were applied as independent variables.

Utilization of routine antenatal health care services was approximately 5 times and application of TT-vaccination was 3.7 times higher in urban women as compared to women in rural areas. A higher quality of care (odds-ratio 5.8) and shorter walk-time (odds-ratio 3.1) were significantly associated with more utilization of routine antenatal care services. Mother's education showed a nearly significant positive relationship both with the use of routine antenatal health care service (odds-ratio 2.1).

Results suggest that public health care policy should focus on 1. developing more high quality primary health care facilities for routine antenatal care and TT-vaccination in rural areas, and 2. development and implementation of mass-media and community education for pregnant women on the need for routine antenatal care and TT-vaccination.10

Another study done in Sudan, Use of antenatal care services in Kassala, eastern Sudan, found that: Antenatal care is named as one of the four pillars initiatives of the Safe Motherhood Initiative. While many of routine antenatal care procedure have little effect on maternal mortality and morbidity, some of these have been ascertained as beneficial. The aim of this study was to investigate coverage of antenatal care and identify factors associated with inadequacy of antenatal care in Kassala, eastern Sudan.
Methods: A cross-sectional community-based study was carried out in Kassala, eastern Sudan during September-October 2009. Household surveys were conducted. Structured questionnaires were used to gather data from women who had been pregnant within the last year, or pregnant more than 14 weeks.

Results: Out of 900 women investigated for antenatal care coverage, 811 (90%) women had at least one visit. Only 11% of the investigated women had ≥ four antenatal visits, while 10.0% had not attended at all. Out of 811 women who attended at least one visit, 483 (59.6%), 303 (37.4%) and 25 (3.1%) women attended antenatal care in the first, second and third trimester, respectively. In logistic regression analyses, while maternal age and residence were not associated with inadequacy of antenatal care (<2 visits), high parity (OR = 2.0, CI = 1.1-3.5; P = 0.01) and husband education ≤ secondary level (OR = 2.4, CI = 1.3-4.2; P = 0.002) were associated with inadequacy of antenatal care.

Conclusions: Antenatal care showed a low coverage in Kassala, eastern Sudan. This low coverage was associated with high parity and low husband education.

In a study conducted in Nigeria with this abstract: Antenatal care gives opportunity for care of women during pregnancy, prevention and treatment of diseases as well as behavioral change interventions. The perception of users about services influences service utilization. This study was performed to assess user satisfaction with antenatal care services at the centre and to identify constraints at service points. Women attending antenatal care at a cottage hospital in Nigeria were administered questionnaires to evaluate their satisfaction with services and their views about services at various points of care. Data analysis was made using Statistical Package for Social Science version 15.0. Statistical significance was set at P < 0.5. Four hundred correctly completed questionnaires were analysed. The mean age of the respondents was 29 years (SD of 4) and their parity ranged from 0 to 5 (mean 2.5 ± 1.9). The overall satisfaction with care was 94 % and it was highest (95.8 %) with health talks and least with medical consultations (64 %). Attributes valued at service points were educating nature of health talks, prompt attention, and friendly and polite staff. Reasons for dissatisfaction were unfriendly attitudes of staff and delay at service points. Additional care packages women would want were: more staff employed 61 (15.3 %), better organized services 34 (8.5 %) and routine ultrasound scans 25 (6.3 %).
Women valued antenatal care and were highly satisfied with services received at the centre. Health education forums should be used to address issues with service delivery. Constraints at service points should be addressed to enhance better service delivery. In a study conducted in Oman with these objectives: As client feedback is useful to improve health service delivery, assessments should be undertaken periodically. This study aimed to determine the level of satisfaction among expectant mothers visiting health institutions for antenatal care services in the Ministry of Health, Musandam region of Oman in 2005.

Methods: This was a cross sectional survey in a hospital setup. Women registered in the antenatal clinics of different health institutions of Musandam region were interviewed. Arabic speaking investigators in six health institutions of Musandum region collected personal profiles, details of different antenatal services offered and responses regarding the satisfaction with these services. The number and percentage of responses were calculated to grade the level of satisfaction.

Results: Eighty-three registered women who visited antenatal clinics in six health institutions were interviewed. The overall satisfaction for antenatal care was of excellent grade in 49 (59% – 95% confidence interval 48.5 – 69.6) participants. Sixty-seven (81%) women were happy with services at antenatal clinics mainly because of the attitude of the doctors and nursing staff. The leading causes of dissatisfaction were the laboratory services and overcrowding during morning hours.

Conclusion: The women attending antenatal care services in Musandam were highly satisfied with the services offered; however, there was scope for further improvement. The Ministry of Health in consultation with the caregivers should focus on improving antenatal services.
Chapter Two
Objectives

Main objective:

1. To assess the services provided for pregnant women at Alshokaba health center - antenatal care service in term of structure and outcome.

Specific objectives:

1. To assess the availability of the well-trained staff (Doctors, nurses, midwives, lab technicians, nutrition and immunization staff).
2. To assess the availability of complete instruments, drugs, outline the associated factors that may affect utilization of antenatal care.
3. To compare the services provided for pregnant women to adopted international guidelines.
4. To identify gaps in the services to come up with a plan for improvement.
Chapter Three
Methodology

Type of study:
Cross-sectional Observational study health center based prospective study to determine the pregnant woman satisfaction about antenatal care services provided at Alshokaba Health Center.

Area of study:
Alshokaba health center – South Gezira Locality, Gezira state - Sudan.

Population of study:
All pregnant women who attended Alshokaba health center seeking antenatal care during the study period and agreed to participate.

Study sample:
The total sample size was 130 pregnant women, based on comprehensive sampling.

Data collection:
The data collection was carried out by a WHO pre-designed questionnaire “Antenatal care trail: Assessment of Perceived quality of care” and data collection sheet.

Data storage method:
All data was stored on a personal computer, no mother identification nor individual mother details was published, permission of the mothers was taken to use the data.
**Alshokaba:**

Alshokaba area is about 12 kilometers south of the city of Wad Medani, it is a part of Southern Gezira Locality, bordered from the north by the land of Alwohda, from the south by Gezira scheme agricultural land, and by Sennar highway from the east and Alshokaba Taha from the west.

It's population is about 2256 people, mostly of Alkawahala tribe most of them work in agriculture, trade and a small number are staff in the state and the private sector. With 2 primary schools (boys and girls) and also 2 secondary schools for boys and girls, One mosque and a number of other Zawaya. Cultural and sports activity through El Alshokaba Sporting Club, which was promoted this year to the third degree.

**Health center:**

The health center is providing many health services; it is with a house for the doctor.

It consist of a clinic for the physician and another clinic for the medical assistant, a laboratory and a clinic for immunization, nutrition and other for the midwife and a recovery room. There is also a pharmacy but there is no fence to the center and there are toilets not ready to work. The center working hours are from 8:30 AM to 2:00 PM, without evening or night shifts. Sometime the doctor may see some cases at home, if there is a need they may be complete their management at the center, this is in addition to the regular home visits.

Number of working staff is 18 workers and are distributed as follows:

- 2 doctors (family + therapeutic medicine)
- Lab technician + malaria examiner + lab operator.
- Clinic receptionist + 2 statistical technician + insurance officer.
- 2 nutritionist + 2 immunization technician.
- One midwife.
- Sentry + 3 office worker + cooperating office worker.
- Nurse.
Table 1: Qualification and experience of medical staff

<table>
<thead>
<tr>
<th>No</th>
<th>Staff</th>
<th>Count</th>
<th>Qualification</th>
<th>Years of experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Doctors</td>
<td>2</td>
<td>MBBS</td>
<td>6 years (post graduating in FM, 2 years)</td>
</tr>
<tr>
<td>2</td>
<td>Medical assistant</td>
<td>1</td>
<td>Med. Assis. certificate</td>
<td>3 years</td>
</tr>
<tr>
<td>3</td>
<td>Lab technician</td>
<td>1</td>
<td>Master in Lab. Science</td>
<td>17 years</td>
</tr>
<tr>
<td>4</td>
<td>Midwife</td>
<td>1</td>
<td>Midwifery certificate</td>
<td>11 years</td>
</tr>
<tr>
<td>5</td>
<td>Nurse</td>
<td>1</td>
<td>Nursing course</td>
<td>4 years</td>
</tr>
<tr>
<td>6</td>
<td>Nutritionist</td>
<td>2</td>
<td>Nutrition courses</td>
<td>2 years, 2 years</td>
</tr>
<tr>
<td>7</td>
<td>Immunization tech</td>
<td>2</td>
<td>Immunization courses</td>
<td>5 years, 4 years</td>
</tr>
</tbody>
</table>
Chapter Four

Results

130 pregnant women seeking antenatal care in Alsokaba health center in (ANC) were interviewed about the services they received and their satisfaction with these services, the results were as follow:

Table 2: Number of weeks of pregnancy at first visit

<table>
<thead>
<tr>
<th>No. of weeks</th>
<th>No.</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 8 weeks</td>
<td>63</td>
<td>48.46%</td>
</tr>
<tr>
<td>8-12 weeks</td>
<td>39</td>
<td>30.00%</td>
</tr>
<tr>
<td>More than 12 weeks</td>
<td>28</td>
<td>21.54%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>130</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>
Figure 1: Number of antenatal visits including this one
Table 3: are you happy about the antenatal checkups you have had or you would prefer:

<table>
<thead>
<tr>
<th>Answer</th>
<th>No.</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>More checkups</td>
<td>39</td>
<td>30.00%</td>
</tr>
<tr>
<td>Fewer checkups</td>
<td>17</td>
<td>13.08%</td>
</tr>
<tr>
<td>No of checkups was right</td>
<td>74</td>
<td>56.92%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>130</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Figure 2: Have the number of antenatal checkups been
Table 4: Has the time between the antenatal checkups been:

<table>
<thead>
<tr>
<th>Answer</th>
<th>No.</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Too short</td>
<td>11</td>
<td>8.46%</td>
</tr>
<tr>
<td>Too long</td>
<td>16</td>
<td>12.31%</td>
</tr>
<tr>
<td>About right</td>
<td>103</td>
<td>79.23%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>130</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Figure 3: how long do you usually have to wait at the unit before being seen by a doctor who provides you with the antenatal service
Table 5: Are you happy with the time you normally wait:

<table>
<thead>
<tr>
<th>No. of visits</th>
<th>No.</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>81</td>
<td>62.31%</td>
</tr>
<tr>
<td>No</td>
<td>49</td>
<td>37.69%</td>
</tr>
<tr>
<td>Total</td>
<td>130</td>
<td>100%</td>
</tr>
</tbody>
</table>

Figure 4: How much time do you spend with the doctor in antenatal clinic
Table 6: do you have enough time with the doctor during the checkups or you would prefer:

<table>
<thead>
<tr>
<th>Answer</th>
<th>No.</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A lot more time</td>
<td>70</td>
<td>53.85%</td>
</tr>
<tr>
<td>A little more time</td>
<td>22</td>
<td>16.92%</td>
</tr>
<tr>
<td>Time is about right</td>
<td>38</td>
<td>29.23%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>130</td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

![Bar chart](chart.png)

**Figure 5:** if you had a choice, you would prefer to be seen by
Table 7: if you had a choice, you would prefer to be attended by:

<table>
<thead>
<tr>
<th>Answer</th>
<th>No.</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A doctor</td>
<td>87</td>
<td>66.92%</td>
</tr>
<tr>
<td>A midwife</td>
<td>18</td>
<td>13.85%</td>
</tr>
<tr>
<td>A combination</td>
<td>12</td>
<td>9.23%</td>
</tr>
<tr>
<td>No preference</td>
<td>13</td>
<td>10.00%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>130</td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Figure 6: was the information you received about looking after your own health
Table 8: was the information you received about tests (e.g. blood, urine …) during the pregnancy:

<table>
<thead>
<tr>
<th>Answer</th>
<th>No.</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not enough</td>
<td>48</td>
<td>36.92%</td>
</tr>
<tr>
<td>As much as I want</td>
<td>51</td>
<td>39.23%</td>
</tr>
<tr>
<td>Too much</td>
<td>18</td>
<td>13.85%</td>
</tr>
<tr>
<td>No information received</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Don’t remember</td>
<td>13</td>
<td>10%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>130</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Figure 7: was the information you received about any treatment you might need during the pregnancy
Table 9: was the information you received about labour:

<table>
<thead>
<tr>
<th>Answer</th>
<th>No.</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not enough</td>
<td>29</td>
<td>22.31%</td>
</tr>
<tr>
<td>As much as I want</td>
<td>78</td>
<td>60.00%</td>
</tr>
<tr>
<td>Too much</td>
<td>14</td>
<td>10.77%</td>
</tr>
<tr>
<td>No information received</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Don’t remember</td>
<td>9</td>
<td>6.92%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>123</strong></td>
<td>100%</td>
</tr>
</tbody>
</table>

Figure 8: was the information you received about breastfeeding
Table 10: was the information you received about family planning:

<table>
<thead>
<tr>
<th>Answer</th>
<th>No.</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not enough</td>
<td>51</td>
<td>39.23%</td>
</tr>
<tr>
<td>As much as I want</td>
<td>55</td>
<td>42.31%</td>
</tr>
<tr>
<td>Too much</td>
<td>19</td>
<td>14.61%</td>
</tr>
<tr>
<td>No information received</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Don’t remember</td>
<td>5</td>
<td>3.85%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>130</td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Figure 9: if you got pregnant again, would you come back to this center
Table 11: would you recommend this center to a relative or friend for their antenatal checkups:

<table>
<thead>
<tr>
<th>Answer</th>
<th>No.</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>105</td>
<td>80.77%</td>
</tr>
<tr>
<td>No</td>
<td>15</td>
<td>11.54%</td>
</tr>
<tr>
<td>Don’t know</td>
<td>10</td>
<td>7.69%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>80</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Figure 10: in general, how satisfied are you with the antenatal care you have received in this center
Table 12: Availability of antenatal care services and instruments in the center:

<table>
<thead>
<tr>
<th>Standard guideline items</th>
<th>Availability in No.</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visits including booking history and clinical examinations</td>
<td>All are available</td>
<td>100%</td>
</tr>
<tr>
<td>Screening tools</td>
<td>2/5</td>
<td>40%</td>
</tr>
<tr>
<td>Investigation tools</td>
<td>3/3</td>
<td>100%</td>
</tr>
<tr>
<td>Ultrasound investigation</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Tetanus Vaccination</td>
<td>1/1</td>
<td>100%</td>
</tr>
<tr>
<td>Other vaccines</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Pharmacy service</td>
<td>0</td>
<td>0%</td>
</tr>
</tbody>
</table>

Referral system to Wad Medani Obstetrical and Gynecology Teaching Hospital is designed to cover the unavailable services and instruments in center.
Chapter Five

Discussion, Conclusion and Recommendations

Discussion

Contact with a health professional about antenatal care had taken place for more than two-thirds of women (78.46%) by the twelfth week of pregnancy. The next appointment had taken place for (62.31%) of women, this goes with Kassala study\textsuperscript{11}. Most of the women (70.00%) were happy about the antenatal checkups they had, and (88.46%) thought that the number of visits is the same or more than they expected.(79.23%) of the women believed that the time between the antenatal checkups is about right. (76.16%) of the women wait for less than an hour before being seen by a doctor, and (62.31%) of them are happy with the time they waited, this is above the outcome of Nigeria study\textsuperscript{12}.

Most of the women (86.15%) spent less than 20 minutes with the doctor, and (53.85%) prefer a lot more time. About one third of the women responding (31.54%) reported seeing a male provider, while (39.23%) of them reported that they had no preferences. More than two-third of the women (66.92%) preferred to be seeing by a doctor, while (13.85%) preferred a midwife. More than half the women (53.08%) reported that they had received enough or too much information about looking after their own health or about the laboratory tests they had done, this is quite different with Kassala study\textsuperscript{11}but agreed with Saudi study\textsuperscript{10}.

Two-thirds of the women (65.39%) answered that they had received enough or too much information about treatments they may need during pregnancy and (70.77%) of them reported that they received enough or too much information about the labour. (57.47%) of the women answered that they had received enough or too much information about breastfeeding and (56.92%) of them reported that they received enough or too much information about family planning. In coming pregnancies (71.54%) of the women will come back to this center, and (80.77%) of them will recommend it for a relative or a friend for Antenatal care. The majority of the women (90.76%) were very satisfied or satisfied with the antenatal care services they had in
this center, this agreed with Nigeria\textsuperscript{12} and Kassala\textsuperscript{11} but is different from Oman study\textsuperscript{13}. 
Conclusion

About the services provided for pregnant women at Alshokaba health center - antenatal care service in term of structure and outcome, most women were positive about most of their antenatal care. The basic needs including instruments, vaccinations, and other services are mostly available; the shortage in some services and drugs is covered by the referral system. When comparing the services provided for pregnant women to adopted international guidelines, the provided services are within the guidelines. Concerning the availability of the well-trained staff (Doctors, nurses, midwifes, lab technicians, nutrition and immunization staff), the checklist show that the staff is almost in an acceptable level of training and medical skills.
Recommendations

- Although it is doing great services for the population in the area, the (ANC) unit should be improved by more training for the working staff.
- Increase the working hours to serve a larger number of pregnant women and health care seekers.
- Improve the quality of the laboratory services.
- Increase the availability of the antenatal care educational materials.
- Working with the public committee in establishing a complete pharmacy.
References

Annex 1: Questionnaire

<table>
<thead>
<tr>
<th>IDENTIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Form code</td>
</tr>
<tr>
<td>b) Study number</td>
</tr>
<tr>
<td>c) Study site</td>
</tr>
<tr>
<td>d) Clinic code</td>
</tr>
<tr>
<td>e) Subject number</td>
</tr>
</tbody>
</table>

We would like to spend about 15-20 minutes asking you about the care you are receiving during your pregnancy. Your views will help us improve ante-natal care for yourself and other women. The information you provide will be kept in strictest confidence.

1. Date of interview
   [ ] day [ ] month [ ] year

2. Weeks of pregnancy
   [ ]

3. Number of antenatal visits including this one
   [ ]

Now I am going to ask some questions about the antenatal visits that you have had during this pregnancy.

4. Are you happy about the number of antenatal checkups you have had, or would you have preferred: (read out the options)
   1 = more check-ups
   2 = fewer check-ups
   3 = number of check-ups was right

5. Have the number of antenatal checkups been: (read out the options)
   1 = more than you expected
   2 = less than you expected
   3 = about the same as you expected

6. Has the time between checkups been: (read out the options)
   1 = too short
   2 = too long
   3 = about right

7. How long do you usually have to wait at the unit (clinic/hospital) before being seen by a doctor/nurse/midwife who provides you antenatal care?
   [ ] hours [ ] minutes

8. Are you happy with the time you normally have to wait?
   1 = no
   2 = yes

9. How much time do you usually spend with the doctor/nurse/midwife who provides you antenatal care?
   [ ] hours [ ] minutes

10. Do you have enough time with the doctor/nurse during your checkups, or would you prefer: (read out the options)
    1 = a lot more time
    2 = a little more time
    3 = time is about right

11. If you had a choice, would you prefer to be seen by: (read out the options)
    1 = a male provider
    2 = a female provider
    3 = no preference

12. If you had a choice, would you prefer to be attended by: (read out the options)
    1 = a doctor
    2 = a nurse
    3 = a midwife
    4 = a combination
    5 = no preference

Now I am going to ask you more about the care you have had. First some questions about the information you received from the doctors and nurses who provided you with antenatal care.

13. Was the information you received about looking after your own health: (read out the options)
    1 = not enough
    2 = as much as you wanted
    3 = too much
    4 = no information received
    5 = don't remember

14. Was the information you received about tests (e.g. blood, urine) during this pregnancy: (read out the options)
    1 = not enough
    2 = as much as you wanted
    3 = too much
    4 = no information received
    5 = don't remember

15. Was the information you received about any treatment you might need during this pregnancy: (read out the options)
    1 = not enough
    2 = as much as you wanted
    3 = too much
    4 = no information received
    5 = don't remember
16. Was the information you received about labour:
   (read out the options)
   1 = not enough
   2 = as much as you wanted
   3 = too much
   4 = no information received
   5 = don't remember

17. Was the information you received about breastfeeding:
   (read out the options)
   1 = not enough
   2 = as much as you wanted
   3 = too much
   4 = no information received
   5 = don't remember

18. Was the information you received about family planning:
   (read out the options)
   1 = not enough
   2 = as much as you wanted
   3 = too much
   4 = no information received
   5 = don't remember

19. Were you told how to recognise and proceed about some serious problems that can happen in pregnancy?
   (read out the problems)
   1 = no  2 = yes
   (a) rupture of membranes
   (local equivalent)
   (b) haemorrhage
   (local equivalent)
   (c) premature contractions
   (local equivalent)
   (d) dizziness and fainting
   (local equivalent)
   (e) fever
   (local equivalent)
   (f) other, specify:

<table>
<thead>
<tr>
<th>Told how to recognise</th>
<th>Told how to proceed</th>
</tr>
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<tbody>
<tr>
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</tbody>
</table>

Next, I want to move on to ask about any concerns you may have had about your pregnancy.

20. During your pregnancy, were you worried about any of the following conditions:
    (read out the conditions)
    1 = no  2 = yes
    (a) the position of your baby
    (b) the size of your baby
    (c) whether your baby might be premature
    (d) the possibility of having a baby with a disability or abnormality
    (e) your own health
    (f) your weight
    (g) other possible complications of pregnancy, specify:

<table>
<thead>
<tr>
<th>1 = no</th>
<th>2 = yes</th>
<th>3 = did not receive information</th>
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21. Did the information given by the doctor or nurse reassure you?
    1 = no  2 = yes  3 = did not receive information

<table>
<thead>
<tr>
<th>1 = no</th>
<th>2 = yes</th>
<th>3 = did not receive information</th>
</tr>
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If 'yes' to any of (a)-(g), ask the following question in every case:
Finally, three questions to sum up.

22. (a) If you get pregnant again will you come back to this unit (clinic/hospital)?
   - 1 = no
   - 2 = yes
   - 3 = don't know

   (always ask)

   (b) Why?

   23. Would you recommend this unit (clinic/hospital) to a relative or friend for their antenatal checkups?
   - 1 = no
   - 2 = yes
   - 3 = don't know

24. In general, how satisfied are you with the antenatal care you have received so far in this unit (clinic/hospital)?
   - 1 = very satisfied
   - 2 = satisfied
   - 3 = not satisfied

PLEASE THANK THE WOMAN

Interviewer's name __________________________
Signature __________________________
Date __________________________

COMMENTS
Annex 2: Checklist of qualification and experience of medical staff

<table>
<thead>
<tr>
<th>No</th>
<th>Staff</th>
<th>Count</th>
<th>Qualification</th>
<th>Years of experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
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</tbody>
</table>
Annex 3: Checklist of antenatal care standard guideline items available

<table>
<thead>
<tr>
<th>Standard guideline items</th>
<th>Availability in No.</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visits including booking history and clinical examinations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Screening tools</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Investigation tools</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ultrasound investigation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tetanus Vaccination</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other vaccines</td>
<td></td>
<td></td>
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<tr>
<td>Pharmacy service</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
قُرآن كريم

بسم الله الرحمن الرحيم

"ولقد خلقنا الإنسان من سلالة من طين (12) ثم جعلناه نطفة في قرار مكين (13) ثم خلقنا النطفة علقة (14) ثم خلقنا العلقة مضغة (15) ثم خلقنا المضغة عظاما (16) فكسرنا العظام لحما (17) ثم أنشأناه خلقا آخر (18) فتبارك الله أحسن الخالقين (19)

صدق الله العظيم

سورة المؤمنون