Knowledge of Risk Factors Associated With Spontaneous Abortion among Childbearing Mothers Accessing Antenatal Care Services in Nsukka Local Government Health Facillities

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Abstract

The study was conducted to ascertain the knowledge of risk factors associated with spontaneous abortion among childbearing mothers accessing antenatal care services in Nsukka Local Government health facilities. Three specific objectives with corresponding three research questions, and one null hypothesis guided the study. The study adopted the descriptive research design. Population for the study consisted of 4,400 childbearing mothers in Nsukka Local Government health facilities. Sample size for the study consisted of 330 childbearing mothers accessing antenatal care services in Nsukka LG health facilities using multistage sampling procedure (stratified random sampling technique, simple random sampling technique of balloting without replacement and simple random sampling technique) to select a sample of 330 child bearing mothers. The instrument for data collection was Knowledge of Risk Factors Associated with Spontaneous Abortion Questionnaire (KRFASAQ). Frequencies and percentages were used for answering the research questions while Chi-square statistics was used for testing the null hypothesis. Results among others indicated that child bearing mothers possessed moderate knowledge (49.5%) of maternal infection as a risk factor for spontaneous abortion. The Child bearing mothers possessed moderate knowledge (55.5%) of work stress as a risk factor for spontaneous abortion. Knowledge of risk factors associated with spontaneous abortion among childbearing mothers based on age was very low. Also, at .05 level of significance, there was no significant difference in the level of knowledge of risk factors associated with spontaneous abortion among childbearing mothers based on age. Based on the findings, the study recommended that Ministry of Education, in conjunction with the ministry of Health and Ministry of Women Affairs should organize seminars and workshops in health facilities, churches and town halls to enlighten women on causes and prevention of foetal death during pregnancy.

Keywords: Spontaneous abortion, Childbearing mothers, Antenatal care, Risk factors, Knowledge

Introduction

Spontaneous abortion is a matter of concern in public health because of its impact on maternal and family health. It is not only an important issue of reproductive health, but also a health risk factor for mother's well-being. It is estimated that globally, 12-15% of clinically recognized pregnancies, and as many as 17%-22% of all pregnancies, result in spontaneous abortion (American College of Obstetricians and Gynecologists (ACOG), 2005). In Nigeria, spontaneous abortion rate is on the increase. It was found to be one of the leading causes of maternal and fetal mortality (Niger, 2006). Incidence of spontaneous abortion in all pregnancies is probably higher because very early abortions are mistaken for a late menstrual period (Antonette, 2016). The author further estimated that about 20 to 30% of women with confirmed pregnancies bleed during the first 20weeks of pregnancy, 10 to 15% of these women spontaneously abort.

Abortion means the termination of a pregnancy. Thapa, Rimal and Preston (2006) opined that abortion is the termination of pregnancy or the removal or expulsion from the uterus of a fetus or embryo which result to

death of the fetus. Abortion is commonly misunderstood outside medical circles. Medically, abortion means loss of the fetus, for any reason, before it is able to survive outside the womb (Annas & Sterman, 2007). In the context of this study, abortion can be defined as the loss of pregnancy before the fetus is viable, thereby denying the fetus full opportunity of development.

Abortion can be induced or it can occur spontaneously. An abortion can occur spontaneously, in which case, it is otherwise called a miscarriage (Umar, Olubiyi, Aliyu, Aminat, Imam, Ayoade & Nwadiliorah, 2014). Induced abortion could be legal or criminal (Niger, 2006). Legally induced abortion refers to medically indicated abortion for women whose life or health is threatened by congenital or genetic factors, while criminal abortion is the termination of pregnancy by illegal interference (Niger, 2006). Spontaneous abortion is non induced embryonic or fetal death or passage of products of conception before 20weeks gestation (Antonette, 2016). According to Mules (2001), spontaneous abortion is the sudden termination or expulsion of the fetus or pregnancy. In this study, spontaneous abortion can be defined as the natural and sudden termination of pregnancy before viability.

Literature has shown that there are many classification of spontaneous abortion. Umar, Olubiyi, Aliyu, Aminat, Imam, Ayoade & Nwadiliorah (2014) classified spontaneous abortion into five major types namely: threatened abortion, inevitable abortion, incomplete abortion, complete abortion and missed abortion. In threatened abortion, there is vaginal bleeding during early pregnancy without cervical dilatation or change in cervical consistency (Umar, Olubiyi, Aliyu, Aminat, Imam, Ayoade & Nwadiliorah, 2014). Inevitable abortion, according to Umar, Olubiyi, Aliyu, Aminat, Imam, Ayoade & Nwadiliorah (2014), is an early pregnancy loss with vaginal bleeding and dilatation. Chamberlain (2008) defined incomplete abortion as a type of spontaneous abortion in which the products of conception, usually chronic or placental tissues are retained. Complete abortion, according to Umar, Olubiyi, Aliyu, Aminat, Imam, Ayoade & Nwadiliorah (2014), is a type of spontaneous abortion in which the whole products of conception, placenta and membranes from the uterus is completely expelled. Missed abortion occurs when the embryo dies and is retained in the uterus (Umar, Olubiyi, Aliyu, Aminat, Imam, Ayoade & Nwadiliorah, 2014).

Childbearing mothers are women of reproductive age usually between fifteen and forty-nine years who undergo the process of pregnancy and childbirth. Igbokwe and Adama (2011) asserted that childbearing mothers are women who are within their reproductive ages, that is, aged 15 to 49 years. In this study, childbearing mothers are those women between 15 to 49 years who are pregnant currently or had been pregnant. These various types of spontaneous abortion poses risk to women's health and are exclusively experienced by childbearing women.

Risk factors are situations or conditions capable of leading to adverse conditions. According to Australian Institute of Health and Welfare (AIHW) (2011), risk factors are those attributes, characteristics or exposures that increase the likelihood of a person developing a disease, or health disorder. World Health Organization (WHO) (2016) also defined risk factors as any attributes, characteristics, or exposure of an individual that increases the likelihood of developing a disease or injury. In this study, risk factors are those variables associated with an increased risk of spontaneous abortion. Knowledge of these risk factors is essential for all childbearing mothers.

Knowledge is a fact or condition of being aware of something. Uduma (2000) defined knowledge as the ability to understand or comprehend phenomena, the acquisition of positive information by the exercise of some capacity which humans presumably have in common. In the context of this study, knowledge can be defined as the awareness of those factors associated with an increased risk of spontaneous abortion

Maternal infection can lead to complications in the reproductive organs, problems of fertility and other general health problems. According to Trisha (2016), many micro- organisms live harmlessly, even helpfully in the female reproductive tracts. But certain bacteria can cause problems, including an increased risk of miscarriage. The author further stated that in women, infection with these bacteria can inflame the endometrium (the lining of the uterus), making it impossible for an embryo to develop.

Stress from work (farm) is one of the main causes of spontaneous abortion. During times of stress, the brain releases several hormones including one called corticotrophin-releasing hormone (CRH) (Body Mass Index (BMI) Research, 2005). It further stated that CRH is a hormone the brain secrets in reaction to physical or emotional stress, and it is also produced in the placenta and the uterus of a pregnant woman to trigger uterine contractions during delivery. Age of the mother is one of the socio-demographic factors which may contribute to spontaneous abortion.

Age of the mother can lead to spontaneous abortion. According to Medicine Net (2016), the risk of having a Down Syndrome baby rises with maternal age and there is no way to prevent chromosome problem from happening, as one gets older, especially after age 35, the person's risk for chromosome problems specifically, and miscarriage in general increases.

Nsukka Local Government Area is one of the seventeen local government areas in Enugu State. It is located in the Enugu North Senatorial Zone of Enugu State and covers a land area of 45.38km square (Maplandia, 2014). The Local Government Area is divided into three parts, namely: Nsukka East, Nsukka West and Nsukka Central. Currently, it is being dominated mostly by farmers in which some childbearing mothers also partake in the farming thereby being subjected to some factors responsible for spontaneous abortion such as stress from farm, bodily trauma among others, which some of them may not be aware of. This made it necessary to conduct this study on the risk factors associated with spontaneous abortion in order to reduce its occurrence.

Statement of the Problem

It is expected that pregnancy should progress so that embryo would live up to viability. There should be no pregnancy loss and many babies should be born alive and healthy. Unfortunately, as a result of some factors, some pregnancies do not progress, and are terminated which leads to loss of life of the fetus and even that of the mother in some extreme cases. This termination could result from some factors like the mothers' unhealthy lifestyle practices during pregnancy such as self medications, being subjected to farm stress, untreated infection, poor knowledge of risk factors and age among others.

Regrettably, the researcher observed that in Nsukka Local Government Area, there is high rate of miscarriage among childbearing mothers. This could be due to poor knowledge of risk factors associated with spontaneous abortion among mothers. Therefore, the researcher intends to find out the level of knowledge of these risk factors associated with spontaneous abortion among childbearing mothers accessing antenatal care services in Nsukka LG health facilities.

Purpose of the Study

The purpose of the study is to ascertain the knowledge of risk factors associated with spontaneous abortion among childbearing mothers accessing antenatal care services in Nsukka LG health facilities. Specifically, the study seeks to examine childbearing mothers' level of knowledge regarding:
1. maternal infection as a risk factor for spontaneous abortion among childbearing mothers in Nsukka LG health facilities;
2. work (farm) stress as a risk factor for spontaneous abortion among childbearing mothers in Nsukka LG health facilities;
3. knowledge of risk factors associated with spontaneous abortion among childbearing mothers based on age in Nsukka LG health facilities.

Research Questions

The following research questions were posed to guide the study.
1. What is the childbearing mothers' knowledge regarding maternal infection as a risk factor for spontaneous abortion in Nsukka LG health facilities?
2. What is the childbearing mothers' knowledge regarding work (farm) stress as a risk factor for spontaneous abortion in Nsukka LG health facilities?
3. What is the knowledge of risk factors associated with spontaneous abortion among childbearing mothers based on age in Nsukka LG health facilities?

Hypothesis

The hypothesis below was postulated to guide the study; and tested at .05 level of significance.
Ho_1. There is no significant difference in the level of knowledge of risk factors associated with spontaneous abortion among childbearing mothers based on age.

Methods

The descriptive research design utilizing cross sectional survey research was used in this study. The population for the study consisted of 4,400 childbearing mothers accessing antenatal care services in Nsukka Local Government health facilities. The sample size for the study was 330 childbearing mothers accessing antenatal care services in Nsukka health facilities. Multistage sampling procedure was used in getting the sample size. The first stage involved selection of fifteen health facilities from the fifty –five health facilities in Nsukka Local Government Area using stratified random sampling technique thereby dividing the health facilities into rural and urban health facilities. In the second stage, three health facilities each from urban and rural areas were selected using simple random sampling technique of balloting without replacement. Thus, from both rural and urban health

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facilities, a total of six health facilities were selected. The third stage involved selection of fifty-five mothers from each of the six health facilities using simple random sampling technique. This is to ensure that all mothers had an equal opportunity of being selected without bias. Thus from the six health facilities a total of three hundred and thirty childbearing mothers were selected and used for the study. The instrument for the study was researcher structured questionnaire. The instrument was face validated by three experts from the department of Human Kinetics and Health Education, UNN. The reliability of the instrument was also established using the split half method. The reliability coefficient of 0.85 was obtained. The instrument was therefore deemed reliable for the study. All the 330 questionnaire distributed to childbearing mothers were collected back. The responses on the questionnaire were checked to ensure they were properly filled. They were tallied and converted into frequency distribution tables and percentages for the purpose of description and for answering the research questions. Okafor (1997) stated that a proportion below 21 percent is regarded as very low knowledge. The proportion between 21-39 percent is labeled low level while a score of 40-59 percent is considered moderate level. A score that is between 60 and 79 percent is considered high level knowledge while a score that is 80 percent and above is considered very high level knowledge. This criterion guided the decision of present study. The result was presented in a table and each table was briefly interpreted. Chi-square statistics was used to test the null hypothesis at .05 level of significance.

Results
The results of the study were presented in tables 1-4 below.

Research Question One
What is the childbearing mothers' knowledge regarding maternal infection as a risk factor for spontaneous abortion? Data answering this research question are presented in Table 1.

Table 1: Percentage responses of childbearing mothers' on knowledge regarding maternal infection as a risk factor for spontaneous abortion (n=330)

S/N	Maternal infection and spontaneous abortion	Yes		No	
		f	%	f	%
1.	Miscarriage can occur as a result of untreated infection	184	55.8	146	44.2
2.	Miscarriage can occur when one is treating infection	95	28.8	235	71.2
3.	It is not advisable to get pregnant when one has bacterial infection	106	32.1	224	67.9
4.	I believe infection can cause miscarriage	233	70.6	97	29.4
5.	Miscarriage due to infection usually occur between first and second trimester	198	60.0	132	40.0
	Percentage average		**49.5**		**50.5**

Key: 0-20% = Very low; 21-39% = Low; 40-59% = Moderate; 60-79% = High; 80% and above = Very high

Data in Table 1 showed that low proportion (28.8%) of CBM had knowledge that miscarriage can occur when one is treating infection. Also, low proportion (32.1%) of CBM had knowledge that it is not advisable to get pregnant when one has bacterial infection. About moderate proportion (55.8%) of CBM had knowledge that miscarriage can occur as a result of untreated infection and high proportion (70.6%) of CBM believed infection can cause miscarriage. The table further indicated that high proportion (60.0%) of CBM had knowledge that miscarriage due to infection usually occur between first and second trimester.

Research Question Two
What is the childbearing mothers' knowledge regarding work (farm) stress as a risk factor for spontaneous abortion? Data answering this research question are presented in Table 2

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Table 2: Percentage response of childbearing mothers' on knowledge regarding work (farm) stress as a risk factor for spontaneous abortion (n-330)

S/N	Work (farm) stress and spontaneous abortion	Yes f	Yes %	No f	No %
1.	One can have miscarriage as a result of stress from farm work	193	58.5	137	41.5
2.	One can have miscarriage while rushing to meet up in the farm	186	56.4	144	43.6
3.	Miscarriage can occur due to participation in farm work	116	35.2	214	64.8
4.	Bending down to pick up something during farm work hours can lead to miscarriage	207	62.7	117	35.5
5.	Working more than 45 hours per week can cause miscarriage	213	64.5	117	35.5
	Percentage average		**55.5**		**44.5**

Key: 0-20% = Very low; 21-39% = Low; 40-59% = Moderate; 60-79% = High; 80% and above = Very high

Data in Table 2 showed that low proportion (35.2%) of CBM had knowledge that miscarriage can occur du/e to participation in farm work and high proportion (62.7%) of CBM had knowledge that bending down to pick up something during farm work hours can lead to miscarriage. The table further indicated that high proportion (64.5%) of CBM had knowledge that working more than 45 hours per week can cause miscarriage. About moderate proportion (58.5%) of CBM had knowledge that one can have miscarriage as a result of stress from work and also, moderate proportion (56.4%) of CBM had knowledge that one can have miscarriage while rushing to meet up in the farm.

Research Question Three

What is the knowledge of risk factors associated with spontaneous abortion among childbearing mothers based on age? Data answering this research question are presented in Table 3

Table 3: Percentage responses of knowledge of risk factors associated with spontaneous abortion among childbearing mothers base on age (n=330).

Key: 0-20% = Very low; 21-39% = Low; 40-59% = Moderate; 60-79% = High; 80% and above = Very high

	Age group							
	15-24yrs		25-34yrs		35-44yrs		45yrs+	
	Yes	No	Yes	No	Yes	No	Yes	No
Knowledge based on age.	f %	f %	f %	f %	f %	f %	f %	f %
One can have miscarriage when one is below 20 years	5 1.52	62 18.79	30 9.09	103 31.21	20 6.06	66 20.0	11 3.33	33 10.0
Getting pregnant when one is 35 year and above could lead to miscarriage	13 3.92	54 16.36	20 6.06	113 34.24	19 5.76	67 20.30	14 4.24	30 9.09
It is not advisable to conceive when one is old in age	24 7.27	43 13.03	17 5.15	116 35.15	15 4.55	71 21.51	10 3.03	34 10.30
I believe miscarriage can occur as a result of the woman's age.	15 4.55	52 15.76	30 9.09	130 31.21	16 4.84	70 21.21	5 1.51	39 11.82
It is better to conceive when one is not too old or too young	10 3.03	57 17.27	36 10.90	97 29.39	16 4.85	70 21.21	4 1.21	40 12.12
Percentage Average	**4.06**	**16.24**	**8.06**	**32.24**	**5.21**	**20.85**	**2.66**	**10.67**

Data in Table 3 showed that overall, CBM in age group 45yrs and above had very low knowledge (2.66%) of risk factors associated with spontaneous abortion based on age; CBM in age group 35-44yrs also had very low knowledge (5.21%) of risk factors associated with spontaneous abortion based on age; CBM in age group 25-34yrs equally had very low knowledge (8.06%) of risk factors associated with spontaneous abortion based on age; CBM in age group 15-24yrs also had very low knowledge (4.06%) of risk factors associated with spontaneous abortion based on age.

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Hypothesis One

Ho_1: There is no significant difference in the knowledge of risk factors associated with spontaneous abortion among childbearing mothers based on age. Data that tested this hypothesis is contained in table 4

Table 4: Summary of chi-square (X^2) analysis of significant difference in the knowledge of risk factors associated with spontaneous abortion among childbearing mothers based on age

Items	Age group																x^{2-cal}	df	x^{2-tab}
	15-24yrs				25-34yrs				35-44yrs				45yrs+						
	Yes		No		Yes		No		Yes		No		Yes		No				
	O	E	O	E	O	E	O	E	O	E	O	E	O	E	O	E			
One can have miscarriage when one is below 20 years	5	13.4	62	53.6	30	26.6	103	106.4	20	17.2	66	68.8	11	8.8	33	35.2	8.39	3	7.815*
Getting pregnant when one is 35 year and above could lead to miscarriage	13	13.4	54	53.6	20	26.6	113	106.4	19	17.2	67	68.8	14	8.8	30	35.2	6.13	3	7.815*
It is not advisable to conceive when one is old in age	24	13.4	43	53.6	17	26.6	116	106.4	15	17.2	71	68.8	10	8.8	34	35.2	15.7	3	7.815*
I believe miscarriage can occur as a result of the woman's age.	15	13.4	52	53.6	30	26.6	130	106.4	16	17.2	70	68.8	5	8.8	39	35.2	2.39	3	7.815*
It is better to conceive when one is not too old or too young	10	13.4	57	53.6	36	26.6	97	106.4	16	17.2	70	68.8	4	8.8	40	35.2	8.60	3	7.815*
Overall x^2																	8.28	3	7.815*

Key: * = significant, ** = not significant, O = Observed frequency, E = Expected frequency

Table 4 showed the Chi- square calculated- values with their corresponding table values. One can have miscarriage when one is below 20 years (x^{2-cal} = 8.39 > x^{2-tab} 7.815); It is not advisable to conceive when one is old in age (x^{2-cal} = 15.37 > x^{2-tab} = 7.815); It is better to conceive when one is not too old or too young (x^{2-cal} = 8.60 > x^{2-tab} 7.815). Since their calculated-values were greater than the table-values except for getting pregnant when one is 35 years and above could lead to miscarriage(x^{2-cal} = 6.13 > x^{2-tab} 7.815) and believing that miscarriage can occur as a result of the woman's age (x^{2-cal} = 2. 39 > x^{2-tab} 7.815), the null hypothesis was therefore rejected. This implies that significant difference existed in the knowledge of risk factors associated with spontaneous abortion among childbearing mothers based on age.

Discussion

The findings in table 1 showed that 49.5% of the CBM had knowledge that miscarriage can occur due to maternal infection. This result is not surprising and therefore expected as fewer percentage of CBM had knowledge that maternal infection can cause miscarriage because according to Kriss (2014) infection during pregnancy is harmless and therefore cannot affect the fetus in the womb. This result disagrees with the findings of Oshogba (2015) who stated that bacteria can alter immune response against an early pregnancy thereby causing a miscarriage.

The findings in table 2 showed that 55.5% of CBM had knowledge that miscarriage can occur as a result of the stress from farm work they engaged in. This result is not surprising and therefore expected as greater percentage of women knew that stress from work, rushing to meet up in the farm, participation in farm work,

bending down to pick up something during farm work hours and working more than 45 hours per week can lead to miscarriage because according to White (2012), work overload leads to miscarriage as the woman is stressed up. This result disagrees with the findings of Rose (2014) which found that CBM agreed that stress from work cannot trigger miscarriage as none of them had miscarried due to stress from work.

Age could also influence ones knowledge of subject matter. The findings in Table 3 showed difference in the knowledge of risk factors associated with spontaneous abortion among CBM in age group 25-34yrs and those in 35-44yrs, 15-24yrs and 45yrs and above as they all possessed very low level of knowledge of risk factors associated with spontaneous abortion. This result is not surprising and therefore expected as women had no considerable knowledge that age is a factor that causes miscarriage in women because according to Enemali (2016), age of the pregnant mother is not a risk factor associated with miscarriage since the woman has not reach menopause. This result disagrees with the findings of Richard (2015) which stated that as women gets older, the incidence of chromosomally abnormal egg increase dramatically resulting in lower chance for getting pregnant at all, as well as increasing the risk of miscarriage.

Table 4 showed a significant difference in the knowledge of risk factors associated with spontaneous abortion among childbearing mothers based on age ($x^{2\text{-cal}} = 8.28 > x^{2\text{-tab}} = 7.815$).

Conclusions

Based on the findings and discussion, the following conclusions were reached:
1. That childbearing mothers possessed moderate knowledge regarding maternal infection as the risk factor for spontaneous abortion.
2. Childbearing mothers' knowledge regarding work (farm) stress as a risk factor for spontaneous abortion was moderate.
3. Knowledge of risk factors associated with spontaneous abortion among child bearing mothers based on age was very low.
4. There was no significant difference in the childbearing mothers' knowledge regarding maternal age as a risk factor for spontaneous abortion.

Recommendations

Based on the findings of this study, the following recommendations were proffered:
1. Ministry of Education, in conjunction with the ministry of Health and Ministry of Women Affairs should organize seminars and workshops in health facilities, churches and town halls to enlighten women on causes and prevention of foetal death during pregnancy.
2. Public health educators should do well to create awareness in the hospitals, health centers and women organization like during women August meeting on the risk factors of spontaneous abortion and how to prevent them.

References

American College of Obstetricians and Gynecology (2005). *Risk factors associated with spontaneous abortion in early symptomatic first-pregnancies*. Retrieved from http://www.com/greenjourna/fulltext/2005/Risk-Factors-forspontaneous-abortion-in-early.16.aspx.

Annas, G.J. & Sterman, C. (2007) *Legal and ethical issues in obstetric practice and normal problem pregnancies* (5the Ed.). Philadelphia: Elsevier Churchill Livingstone.

Antonette T.D. (2016). *Spontaneous abortion (miscarriage)*. USA: Merck and co publishers.

Australian Institute of Health and Welfare (2011). *Risk factor to health*. Retrieved from http://www.alhw.gov.au/risk.factrs/.

Body Mass Index Research (2005). *Stress causes miscarriage*. Retrieved from http://www.webind.com/a-to-2guides/news/2030/605how-stress-causes-carriage Accessed on 152016. Accessed on 5/2/2016.

Chamberlain F., J (2008). *Incomplete abortion*. Retrieved from http://www.gentledbirth.org/erchive/misorgst.html. accessed on 23/1/2016. Accessed on 5/2/2016.

Cohen L., Manion, L., and Marrison, K. (2011). *Research method in education* 7th ed. New York: Routledge Taylor and Francis Group.

Enemali, S. (2016). *Does age of woman cause miscarriage?* Retrieved from http://www.ncib.nhi-causes-doci876//. Accessed on 20/08/2016.

Igbokwe, C., C. and Adama, O. (2011). *Determinants of maternal mortality among childbearing mothers*. Undergraduate Project Work. Department of Human Kinetics and Health Education.

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Kriss, D., S. (2014). *Bacterial and viral infections linked to miscarriage/pregnancy loss.* Retrieved from http://www.geogleadservices.com/paged/aclk?

Maplandia (2014). All you need to know about Nsukka. Retrieved from https://tukool.com/know-nigeria/know-about-enugu-state/know-about-nsukka/.

 Medicine Net (2016). *Down Syndrome in babies*. Retrieved from http://www.medicinet.com/script/main/art.asp?articlekey.5377. Accessed on 8/2/2016.

Mules, S. (2001). *Attitude of university students towards abortion in Nigeria*. Retrieved from http://www.academicjournal.org/journals/JN. Accessed on 12/03/2016.

Niger, R. (2006). *Blood pressure during pregnancy*. Retrieved from http://emedicine.medscape.com/artcle/260495-ovenview. accessed on 18/2/2016.

Okafor, P. (1997). *Level of knowledge criterion*. Retrieved from http://www.knowledge-rating.com.

Oshogba, A. (2015). *Infection and pregnancy outcome*. Retrieved from http://www.who.int/infection-preg.//.

Richard, S. C. (2015). *Maternal age and pregnancy loss rate in Chicago*. Retrieved from http://www.advancedfertility.com/age-miscarriage.htm.

Rose, K. (2014). *Factors that causes spontaneous abortion*. Retrieved from http://www.spontaneous abortion.doci5637//.

Thapa, O. E., Rimal, S. Preston, K. (2006). *Abortion*. Retrieved from http://www.nci-bhi-definition-com/en/.

Trisha, T. (2016). *Seven most common miscarriage causes*. Retrieved from http://www.parenting.com//article/seven-most-common-miscarriage-causes. Accessed on 3/1/2016.

Uduma, P., O. (2000). *Concept of knowledge*. Retrieved from http://www.nchib.knowledge-24871. Accessed on 20/09/2016.

Umar, N. J., Olubiyi, S. K., Aliyu, U., Aminat, G. U., Imam, A. A., Ayoade, M. A., & Nwadiliorahh, J. B. (2014). Spontaneous abortion among women admitted into gynaecology wards of three selected hospitals in Maiduguri, Nigeria. *International Journal of Nursing and Midwifery 6*(2), 24-31.

White, R. C. (2012). *Effects of work on pregnancy*. Retrieved from http://www.borgenproject.org/effect-work-pregnant-women/. Accessed on 15/08/2016.

World Health Organization (2016). *Risk factors*. Retrieved from http://www.who-int/topics/risk-factor/en/.