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Full Length Research Paper

Preventive health behaviours for infection among pregnant mothers attending antenatal clinics in Nnamdi Azikiwe university teaching hospital, Nnewi, Anambra State, Nigeria

[1]Nwambo, Joshua C, [2]*Nwankwo, Clementina U, [3]Ilo, Clementine I, [4] Ezenduka, Pauline O, [5]Makachi, Monica C

[1]American University of Nigeria Clinic, Yola, Adamawa State, Nigeria
[2/3/4/5]Department of Nursing Science, Nnamdi Azikiwe University, Nnewi Campus, Anambra State, Nigeria
*Corresponding author's E-mail: amakanwankwo114@yahoo.com

Abstract

Infection during pregnancy is one of the leading causes of maternal mortality. This study was aimed to determine the infection preventive health behaviours during pregnancy among pregnant mothers attending Antenatal clinic in Nnamdi Azikiwe University Teaching Hospital, Nnewi, Anambra State, using a descriptive survey approach. A ten item self-structured questionnaire with a reliability coefficient of 0.99 was used as instrument of data collection from a sample size of 120 randomly selected using a convenient sampling technique. The direct service system was employed to ensure 100% return of instrument. The data collected were presented in frequency tables and chart. Analysis was done using simple percentage distribution table and the hypothesis was tested using chi square analysis technique at the alpha level of 0.05 with the aid of social science statistical package. The findings obtained revealed that the perceived predisposing factors to infection during pregnancy among women of child bearing age include the use of unclean toilet and bathroom, poor personal hygiene, dirty environment, multiple sexual partners/unprotected sexual intercourse and handling of dirty items. They maintain good personal hygiene, go for regular antenatal services; take adequate food, fruits and vegetables, maintain one sexual partner as a preventive measure for infection during pregnancy. Two major factors which are environment and financial status where identified as the key factors influencing choice of infection preventive behaviour during pregnancy. The analysis of the first hypothesis revealed that there is a significant difference in the infection preventive health behavior during pregnancy among pregnant mothers of childbearing age in Nnamdi Azikiwe University Teaching Hospital Nnewi based on number of gestation and the second hypothesis revealed that there is a significant difference in the infection preventive health behavior during pregnancy among pregnant mothers of childbearing age in Nnamdi Azikiwe University Teaching Hospital Nnewi based on their education level. Based on these findings, it is recommended that the health care provider and pregnant mothers to collaborate towards increasing the level of awareness and adoption of infection preventive health behaviour.

Keywords: Infection, pregnancy, health behavior

INTRODUCTION

Background of the Study

Infection during pregnancy is an important, potentially preventable, and yet often overlooked cause of maternal, fetal and neonatal mortality and morbidity. Studies have shown mother's health behavior, to have direct effect on the woman's health and that of her baby (Dean with Kendall, 2014). Pregnancy is arbitrary divided into three

trimesters. The first trimester carries the highest risk of miscarriage, and harm due to teratogens or infections leading to varying degrees of complications and anomalies (Medicine Net, 2011).

Women during pregnancy are often obligated to meet their daily routines or activities, make contact with items or persons that include family members, relatives, friends and others either directly or indirectly, which exposes them to potentially hazardous pathogens that may lead to infection (Dean with Kendall, 2014). The hormonal changes that occur during pregnancy further increase the risk for both pregnancy and non-pregnancy related infections due to the physiological immune-suppression associated with the action of human chorionic gonadotrophin and prolactin (Fraser, Cooper with Nolte, 2008). While this hormonal change is necessary for the survival of the fetus, it causes a physiological immune-suppression, which increases the risk of infection during pregnancy (Tarmasi, Horrath, with Bohacs, 2011).

Puerperal infection defined by the World Health Organization (WHO) as the infection of the genital tract occurring anytime between the rupture of membrane or labour and the 42nd day postpartum, is the second leading cause of maternal death. It accounts for 10-14% of maternal deaths globally and 17% in Nigeria. (Adesokan, 2011). This impact according to Gravett, Gravett, Martin, Bernson, Khan, Boyles, et al (2012) includes pregnancy and non-pregnancy related infection occurring during pregnancy, than attributed to puerperal sepsis alone.

In the International Health Community, is the growing recognition that most successful interventions depend on behaviour change, in line with infection prevention intervention strategy. Virtually all maternal and child health activities targeting infection prevention during pregnancy as cited by Halpin, Martin-Moreno and Maria (2010), requires a form of behaviour change, failure of which may lead to varying degrees of pregnancy and birth related complications.

Infection prevention in pregnancy requires preventive health behaviours, which is the action healthy expectant mothers undertake to keep themselves or others healthy and prevent infection or detect an illness when there are no symptoms (Labspace, 2013). While the aim is relatively simple, which is to ensure a healthy and alive mother and child, the circumstances in which they operate such as gravidity, parity, educational level, occupation, socio-economic status and so on. often influence and necessitate their being complex and multi-dimensional.

Literatures abound, that demonstrate the relationship between pregnancy outcome and bad health behaviours, most of which show that, negative health behaviours predispose to infection, pregnancy and labour complications such as: miscarriage, preterm labour, congenital anomalies/infections of the newborn, maternal and fetal death (Kidspot, 2013). But in spite of the evidence of complications associated with infection during pregnancy, and the numerous health information along with nutrition concerns, food-safety, health promotion, exercise and illness prevention that expectant mothers recieve, a review by Azuogu, Azuogu, and Nwonwu (2011) reveals that the health behaviour of Nigeria women regarding pregnancy related care remains poor and poses one of the greatest challenges to maternal and child health.

A retrospective study conducted by Smeldey, Jancey, Dhalival, Zhao, Monteiro, and Howart (2013) on women's reported health behavior before and during pregnancy in Australia, using 100 women aged 18 or over. Qualitative data and quantitative data were analyzed using descriptive qualitative methodology and by using McNemar's test for correlated proportions. The participants reported a significant education in their level of physical activity during pregnancy, a significant increase in consumption of fruits, vegetables, and fibres and a decrease in fast food consumption (all $P<0.05$). Medical practitioners are the preferred source of health information but seem to provide insufficient information about health behaviours during pregnancy in relation to physical activity, diet and weight management. They recommended a need to improve the provision of health information on physical activity, diet and weight management in the antenatal period.

Kost, Landry and Darroch (1998) conducted a study to predict maternal behaviours in relation to intendedness, independent of social and demographic characteristic in the United State using a multivariate analysis of data from the National Maternal and Infant Health survey and the National survey of family growth. The findings showed that women with intended conceptions are more likely than similar women with unintended pregnancies to recognize early signs of pregnancy and to seek for early prenatal care, and somewhat more likely to quit smoking. But they are not more likely than women with comparable social and demographic characteristics to adhere to a recommended schedule of prenatal visits once they begin care, to reduce alcohol intake, or to follow their clinician's advice about taking vitamins and gaining weight. Social and demographic differences in these behaviours are largely unaffected by planning status, indicating that these differences are independently related to pregnancy behaviours. They concluded that, both the extendedness of a pregnancy and the mother's social and demographic characteristics are important predictors of pregnancy-related behaviour. One hundred and fifteen women were interviewed during their pregnancy in a study conducted by Higgins, Frank, and Brown (2009) on changes in health behavior made by pregnant women in the United States. More than 49% of the women made changes in their diet, exercise pattern, smoking habits, vitamins intake and alcohol use.

In a Southamptom women's survey in UK, conducted by Robinson, Crozier, Berland, Godfrey, Cooper and Linskip (2009), to determine if women changes their behavior during pregnancy. The descriptive survey and analyses were based on 1490 women who delivered between 1998 to 2003. The result showed that there was notable reduction in smoking, alcohol intake. However, there was little change in fruits and vegetable intake. Younger women and those with fewer educational qualifications were less likely to comply with public health recommendation.

Almushait, Mohammed, Al-Harty and Abdullah (2013) conducted a study on the prevalence and predisposing factors of urinary tract infections among pregnant women in Abdha General Hospital using 402 pregnant Saudi Arabia women. The study was to identify the infectious agents causing the infection, and to explore relationship of specific socio-cultural factors with UTI in quasi experimental research design using a urine analysis test. The result showed that the presence of UTI was strongly affected by previous history of reproductive tract inflammation, history of previous UTI attacks, the presence of UTI related complaints, washing and drying of perineum, the direction of washing and drying the perineum, frequency of changing of diaper during menstruation and average of cleaning the bath tub. The study showed a significant percentage of prevalence of UTI among Saudi Arabia pregnant women. Good personal hygiene, correct technique in perineal care (front to back) and regular cleaning of bath tubs and toilet facilities were recommended.

Rabiu, Adewunmi, Kinlusi and Akinsola (2013), in their study of female reproductive tract infection and behavior in Lagos, Nigeria in a descriptive cross sectional survey of women in Lagos State teaching Hospital using 400 women. Data were analyzed using the EPI-info 3.5 statistical software. From the result, most of the respondents (77.2%) had heard of reproductive tract infections. Toilet was the most perceived mode of contracting RTIS, followed by sexual intercourse and poor hygiene.

High-risk sexual behaviours and genital infections during pregnancy conducted by Dwyer (2001), described the sexual behaviours of some pregnant women that contributed to vaginal and cervical infections, and described their lack of awareness about the dangers associated with sexually transmitted infections during pregnancy. It presented a sub analysis of data from a principal epidemiological study of the association between preterm delivery and genital hygiene habits and sexual behaviour during pregnancy. One-hundred and nine postpartum women were questioned about high-risk sexual behaviours during their pregnancies, their partner's sexually transmitted infection status and their knowledge about the effect of sexually transmitted infections on their pregnancy and were significantly high.

Usanga, Bassey, Inyang - etoh, Udoh, Ani and Archibong (2009) conducted an experimental study on *Trichomonas Vaginalis Infection Among Pregnant Women In Calabar, Cross River State, Nigeria.* A total of 562 outpatient pregnant antenatal women made up of 220 from The General Hospital, Calabar (G.H) and 342 from The University of Calabar Teaching Hospital, Calabar (UCTH), were examined for Trichomonas vaginalis infection. Direct wet mount microscopy and Giemsa staining techniques were used on High Vaginal Swab (HVS) specimens collected on sterile swabs. A prevalence of 29(5.2%) was recorded using both methods; 12(5.5%) in G.H. and 17(5.0%) in UCTH, Calabar, respectively. Differences in hospitals used were statistically significant ($P<0.05$). Women in the age group 20-24 years had the highest prevalence of infection 12(10.8%), closely followed by those of age group 15-19 years 8(10.3%). A higher prevalence rate of 9(8.3%) was recorded among women in their first trimester of pregnancy, in single (unmarried) women 7(5.3%) and in women with primary school education 12(6.4%).

This study is poised to determine the various infection preventive health behaviours during pregnancy among pregnant mothers attending Antenatal Clinic in Nnamdi Azikiwe University Teaching Hospital, Nnewi.

Statement of Problem

Pregnancy is an exciting, yet a critical time in a woman's life with increased predisposition to infection (Dean with Kendall, 2014). Infection during pregnancy is one of the leading causes of death among pregnant women in low and middle income countries-most of which are treatable and preventable (Siffedin, 2012). This is of particular concern as stated by Barss (2013), since some infections are more severe in pregnancy or may harm the fetus or new born.

In March, 2013, the Society of Gynaecology and Obstetrics of Nigeria reported that no fewer than 11,600 maternal deaths were recorded in Nigeria (Obinna with Olowoopejo, 2013) of which 17% is attributed to infection during pregnancy second only to hemorrhage (Adesokan, 2011). Pregnancy and labour complications, miscarriage, preterm labour, stillbirth, congenital anomalies, maternal death and so on that are associated with infection can be prevented if conscious effort are made by women of childbearing to adopt healthy behaviours during pregnancy (Dean with Kendall, 2014; Center for Disease Control with Prevention, 2010). But as reported by Azuogu, Azuogu, and Nwonwu (2011), the health behavoiur of Nigeria women regarding pregnancy related care is poor.

In the past, researchers have primarily focused on the relationship between specific health behaviour and negative pregnancy outcome, yet little is known about the health behaviours among pregnant mothers with respect to infection. This study is focused on determining the

various infection preventive health behaviours among pregnant mothers attending antenatal clinic in Nnamdi Azikiwe University Teaching Hospital Nnewi.

Purpose of Study

The purpose of this study is to determine the infection preventive health behaviours during pregnancy among pregnant mothers attending Antenatal Clinic in Nnamdi Azikiwe University Teaching Hospital, Nnewi.
However, the study specifically tends to:
1. Determine the predisposing factors to infection during pregnancy among pregnant mothers attending Antenatal Clinic in Nnamdi Azikiwe University Teaching Hospital, Nnewi.
2. Determine the preventive measures for infection during pregnancy adopted pregnant mothers attending Antenatal Clinic in Nnamdi Azikiwe University Teaching Hospital, Nnewi.
3. Determine the factors that influence the choice of behaviour for preventing infection during pregnancy among pregnant mothers attending Antenatal Clinic in Nnamdi Azikiwe University Teaching Hospital, Nnewi.

Research Questions

1. What are the factors that predispose to infection during pregnancy among pregnant mothers attending Antenatal Clinic in Nnamdi Azikiwe University Teaching Hospital, Nnewi?
2. What are the preventive measures for infection during pregnancy adopted pregnant mothers attending Antenatal Clinic in Nnamdi Azikiwe University Teaching Hospital, Nnewi?
3. What are the factors that influence the choice of behavior for preventing infection during pregnancy among pregnant mothers attending Antenatal Clinic in Nnamdi Azikiwe University Teaching Hospital, Nnewi?

Research Hypotheses

1. There is no significant difference in the infection preventive health behavior during pregnancy among pregnant mothers attending Antenatal Clinic in Nnamdi Azikiwe University Teaching Hospital, Nnewibased on number of gestation.
2. There is no significant difference in the infection preventive health behavior during pregnancy among pregnant mothers attending Antenatal Clinic in Nnamdi Azikiwe University Teaching Hospital, Nnewi based on their educational attainment.

METHODOLOGY AND MATERIALS

Participants

A sample size of 120 of pregnant mothers attending Antenatal Clinic in Nnamdi Azikiwe University Teaching Hospital, Nnewi between the ages 20 to 45years were selected using convenient sampling technique. The Study followed a descriptive design approach. Ethical consideration was obtained and consent given by the pregnant mothers to participate in the study. All information given by the respondents were treated with utmost confidentiality.

Questionnaire

A self-structured validated questionnaire with two sections (A with B) was used for the study. Section A elicited information on the women's personal profile, while section B was used to answer the research questions. Reliability was ascertained using split half method and the result was 0.99, showing that the instrument was reliable. A total of 120 copies of the questionnaire were administered using the direct service system to ensure prompt return of questionnaire.

Statistical Analysis

Data collected were analysed using of statistical package for social science (SPSS version 16). Descriptive statistics were calculated in percentage distribution. The hypotheses were tested using Chi-square analysis at an alpha level of 0.05.

Ethics

The study protocol was approved by the Ethics committee of Nnamdi Azikiwe University Teaching Hospital, Nnewi, Anambra State, Nigeria.

RESULTS

Section One

Mothers personal profile. Items 1-5 The result in Table 1 shows that 10 (8.3%) of the respondents were 20-24 years, 35 (29.2%) were 25-29 years, 35 (29.2%) were 30-34 years, 11(9.2%) were 35-39 years, 16 (13.3%) were 40-44 years while 13 (10.8%) were between 45-49 years. Based on the number of gestation, 28 (23.3%) of the respondents had one, 22 (18.3%) had two, 22 (18.3%) had three, 18 (15%) had four, while 30 (25%) had five and above.

Table 1: Showing mother's personal profile.

Characteristics		
1. Age Range(Years)	**Frequency**	**Percentage**
20-24	10	8.3
25-29	35	29.2
30-34	35	29.2
35-39	11	9.2
40-44	16	13.3
45-49	13	10.8
Total	**120**	**100**
2.Numbeof Gestation	**Frequency**	**Percentage**
One	28	23.3
Two	22	18.3
Three	22	18.3
Four	18	15
Five +	30	25
Total	**120**	**100**
3. Educational level	**Frequency**	**Percentage**
None	3	2.5
Primary	10	8.3
Secondary	33	27.5
Tertiary	74	61.7
Total	**120**	**100**
4. Occupation	**Frequency**	**Percentage**
Civil servant	61	50.8
Trader	28	23.3
Private worker	14	11.7
Unemployed	15	12.5
Student	2	1.7
Total	**120**	**100**
5. Religion	**Frequency**	**Percentage**
Christianity	**119**	**99.2**
Islamism	**1**	**0.8**
Total	**120**	**100**

In educational qualification, it was observed that 10 (8.3%) of the respondents had their primary education, 33 (27.5%) had secondary education, 74 (61.7%)

had tertiary education, while 3 (2.5%) had no formal education. In respect to occupation of the respondents, 61 (50.8%) were civil servants, 28 (23.3%) were self employed (traders), 14 (11.4%) were private workers/farmers, 15 (12.5%) were house wife (unemployed) and 2 (1.7%) were students.

In view of religious inclination, 119 (99.2%) of the respondents were Christians while 1(0.8%) is Islamic.

Section Two

Behaviour and Infection in Pregnancy. Item 6-9. The Pie chart as shown in **figure 1**, reveals that 31 (26%) the respondent have had infection during pregnancy, while 89 (74%) reported no occurrence of infection during any course of their pregnancy. Table 2 shows the percentage distribution of responses on the predisposing factor to infection during pregnancy. 98 (81.7%) and 92 (76.7%) of the respondents believe that the major predisposing factors are use of unclean toilets and poor personal hygiene respectively. Dirty environment had 85 (70.3%), multiple sexual partner/unprotected sexual intercourse 79 (65.8%), Handling dirty and using dirty items 66 (55%), bad lifestyle 54 (45%), malnutrition 53 (44.2%) and stressful activities had the least with 17 (14.2%).

The Table 3 below shows the preventive measures for infection during pregnancy. This shows that 107 (89.2%) of the respondents maintained good personal hygiene, 87 (72.5%) went for regular antenatal services, 81 (67.5%) took adequate food, fruits and vegetables, 79 (65.8%) believed maintaining one sexual partner as a preventive measure, 56 (46.7%) used treated mosquito nets, 54 (45%) avoided high risk contact with persons or place, 35 (29.2%) avoided harmful substances, and 29 (24.2%) avoided hard job or stress.

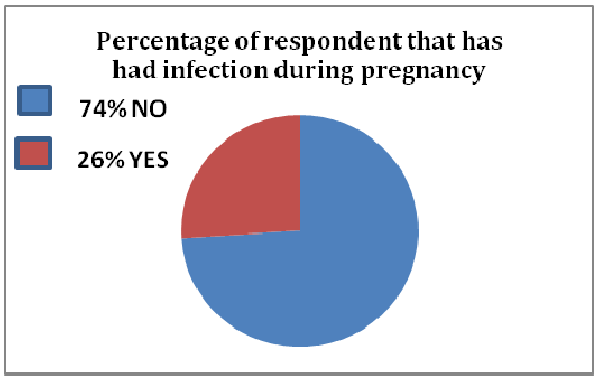

Figure 1: A pie chart showing the percentage of the respondents that has had infection during pregnancy.

Table 2: Showing the percentage distribution of responses on the predisposing factors to infection during pregnancy. **N=120**

	Predisposing Factors	Frequency	Percentages
A	Use of Unclean or dirty bathrooms or Toilets.	98	81.7
B	Poor personal Hygiene(dirtiness)	92	76.7
C	Living in dirty environment	85	70.3
D	Multiple Sexual Partner/Unprotected sexual intercourse.	79	65.8
E	Handling and using dirty items.	66	55
F	Bad lifestyle (smoking, drinking alcohol, Use of illegal drugs)	54	45
G	Malnutrition (Inadequate food or diet)	53	44.2
H	Engaging in stressful Activities and Job.	17	14.2

N.B Table has multiple Options.

Table 3: Showing the percentage distribution of responses on the preventive measures for infection during pregnancy. **N=120**

	Preventive Measures for Infection	Frequency	Percentages
A	Maintaining good personal hygiene (Hand washing, oral care, use of clean items & toilet)	107	89.2
B	Attending antenatal and receiving care services e.g. Immunization, taking routine drugs.	87	72.5
C	Taking adequate food, fruits, vegetables and food precautions.	81	67.5
D	Having only one sexual partner	79	65.8
E	Sleeping under treated mosquito net.	56	46.7
F	Avoiding contact with persons, animals, places known to be infectious or ill	54	45
G	Avoiding intake of Alcohol, illicit drugs, or toxic substances.	35	29.2
H	Avoiding Hard job, work, stress, or strenuous activities or exercise.	29	24.2

The data in Table 3 showed that the major factors influencing the respondents choice of preventive health behaviour for infection during pregnancy were: environment 73 (60.8%), Financial status 49 (40.8%),

Table 4: Showing the percentage distribution of responses on the factors influencing choice of behavior for infection prevention. N=120

	Influencing Factors of Behaviour	Frequency	Percentages
A	The type of environment you live	73	60.8
B	Income or financial problem	49	40.8
C	Your type of occupation	36	30
D	Socio-cultural beliefs	31	25.8
E	Support groups	30	25
F	Religious factor	27	22.5
G	Unplanned pregnancy	23	19.2

N.B not summed up because table has multiple options.

Table 5: Preventive Measures and Number of Pregnancy Cross tabulation N=120

	Number of pregnancy					Total
Preventive Measures	One	Two	Three	Four.	Five +	
A. Maintaining good personal hygiene (Hand washing, oral care, use of clean items & toilet)	36	20	21	11	19	107
B. Avoiding intake of Alcohol, illicit drugs, or toxic substances.	7	11	2	5	7	32
C.Taking adequate food, fruits, vegetables and food precautions.	20	14	25	5	17	81
D. Avoiding Hard job, work, stress, or strenuous activities or exercise.	7	9	10	6	4	36
E. Having only one sexual partner	8	10	11	29	24	82
F. Sleeping under treated mosquito net.	11	6	12	9	22	60
G. Avoiding contact with persons, animals, places known to be infectious or ill	9	7	7	6	25	54
H. Attending antenatal and receiving care services e.g. Immunization, routine drugs	25	10	16	12	24	87
Total	123	87	104	83	142	539

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	86.227[a]	28	0.000
N of Valid Cases	539		

and type of occupation 36 (30%), while socio-cultural beliefs 31 (25.8%), support groups 30 (25%), religious factor 27 (22.5%) and unplanned pregnancy 23 (19.2%) having the least influence in that order.

Research Hypothesis One

There is no significant difference in the infection preventive health behavior during pregnancy among pregnant mothers attending Antenatal Clinic in Nnamdi Azikiwe University Teaching Hospital Nnewi based on their number of gestation. Table 4 above shows the relationship between the chi-square and asymptotic value and it reveals that there is a significant difference in the preventive health behavior for infection during pregnancy among women of childbearing age in Nnamdi Azikiwe University Teaching Hospital Nnewi based on number of gestation at $p<0.05$ significant level.

Research Hypothesis Two

There is no significant difference in the infection preventive health behavior during pregnancy among pregnant mothers attending Antenatal Clinic in Nnamdi Azikiwe University Teaching Hospital Nnewi based on their education level.

The above result in Table 5 showed that the researcher rejected the null hypothesis and accepted the

Table 6: Preventive Measures and Educational level Cross tabulation. N=120

	Educational level			
Preventive Measures	None	Primary	Secondary	Tertiary
A. Maintaining good personal hygiene (Hand washing, oral care, use of clean items & toilet)	0	7	18	82
B. Avoiding intake of Alcohol, illicit drugs, or toxic substances.	0	3	8	24
C. Taking adequate food, fruits, vegetables and food precautions	0	0	21	60
D. Avoiding Hard job, work, stress, or strenuous activities or exercise	1	0	0	28
E. Having only one sexual partner	3	7	24	45
F. Sleeping under treated mosquito net.	1	2	13	40
G. Avoiding contact with persons, animals, places known to be infectious or ill	0	6	2	26
H. Attending antenatal and receiving care services e.g. Immunization, routine drugs	1	7	47	52
Total	6	32	133	357

Chi-Square Tests

	Value	**Df**	**Asymp. Sig. (2-sided)**
Pearson Chi-Square	69.885[a]	21	0.000
N of Valid Cases	528		

alternate, which stated that there is a significant difference in the infection preventive health behaviours during pregnancy among pregnant mothers attending antenatal clinic in Nnamdi Azikiwe University Teaching Hospital Nnewi based on their education level at $p<0.05$ significant level.

DISCUSSION

Objective One

The finding of the data analyzed in response to the occurrence of infection during pregnancy as shown in figure 1, showed that majority of the respondents (74%) had no history of infection during pregnancy while 26% of the respondents had history of infection during pregnancy.

In view of the above, responses on the possible things that can lead or predispose to infection during pregnancy as shown in Table 2 revealed the use of unclean toilet and bathroom, poor personal hygiene, dirty environment, multiple sexual partners/unprotected sexual intercourse and handling of dirty items as the main predisposing factors with more than 50% response. This finding was supported by the work of Rabiu, Adewunmi, Kkinlusi and Akinsola (2013), Dwyer (2001), and Usanga, Bassey, Inyang-etoh, Udoh, Ani, and Archibong (2009). But contrary to findings of Kidspot (2013), Dean and Kendall (2014), Robinson, Crozier, Berland, Godfrey, Cooper and Linskip (2009), bad lifestyle, malnutrition, and stressful activities were perceived by the respondent to be less likely to lead to infection with less than 50% response. This showed that the respondents could not establish or demonstrate relationship between malnutrition, stress, bad lifestyle and infection during pregnancy, an evidence of knowledge deficit.

Objective Two

Findings from the data analyzed in response to research question 2, which seeks to determine the preventive measures for infection during pregnancy among pregnant mothers as shown in Table 3 reveals that, more than 50% of the respondents maintained good personal hygiene, went for regular antenatal services, took adequate food, fruits and vegetables, maintained one sexual partner as preventive measure for infection during pregnancy. This finding is in line with the studies of Smeldey, Jancey, Dhalival, Zhao, Mouteiro and Howart (2013) and Robinson, Crozier, Berland, Godfrey, Cooper and Linskip (2009). However, contrary to the findings of Higgins, Frank and Brown (2007) which revealed that the use of treated mosquito nets, avoiding high risk contact with persons or place, avoiding harmful substances, and avoiding hard job or stress had less than 50% response. It is of importance for pregnant women to understand that pregnancy comes with physiological immune-suppression which can be exacerbated by stress and the risk of

contacting infection increased with contact with person or things known to be a carrier of infectious.

Objective Three

Findings from the data analyzed in response to research question 3, which seeks to determine the factors that influence the choice of behaviour for preventing infection during pregnancy among pregnant mothers age as shown in Table 4, stressed the importance of two major factors which were environment (60.8%) and Financial status (40.8%). But the type of occupation, socio-cultural beliefs, support groups, religious factor and unplanned pregnancy had the least influence in that order with less than 30%. This finding is not congruent with the studies of Kost, Landry and Darroch (1998); Olufunmilayo and Olusola (2011).

Findings $H0_1$: After the analysis, the test of hypothesis showed that the null hypothesis was rejected and the alternative accepted. Theresult revealed that there is a significant difference in the infection preventive health behavior during pregnancy among pregnant mothers attending antenatal clinic in Nnamdi Azikiwe University Teaching Hospital Nnewi based on number of gestation at $p<0.05$ significant level. This finding agrees with the findings of Ndidi and Oseremen (2011). That is to say pregnant mothers adopt different combination of preventive health behavior for infection based on their previous gestation/experience and perceived benefit on pregnancy

Findings $H0_2$: After the analysis, the test of hypothesis shows that the null hypothesis was rejected and the alternative accepted. The result showed that the null hypothesis was rejected and the alternate accepted, which stated that there is a significant difference in the significant difference in the infection preventive health behavior during pregnancy among pregnant mothers attending antenatal clinic in Nnamdi Azikiwe University Teaching Hospital Nnewi based on their education level at $p<0.05$ significant level. This finding is congruent with the work of Robinson, Crozier, Berland, Godfrey, Cooper and Linskip (2009); which further consolidate the fact that knowledge is a key variable in preventing infection during pregnancy, a fact which should be reinforced through raising more awareness and health education on less recognized factors which influence pregnancy outcome in reference to infection.

RECOMMENDATIONS

Based on the findings of this study, the following recommendations were made:

1. Health care providers should create more awareness among pregnant women on the predisposing factors to infection during pregnancy by explaining the link between these factors and occurrence of infection with special emphasis on the less recognized factors such as malnutrition, stress and bad lifestyle.
2. Pregnant women should improve and balance their activity levels to reduce stress which could exacerbate the immune-suppression of pregnancy, while taking necessary precautions to avoid exposure to high risk materials or places with infection.
3. Pregnant women should maintain high level of personal hygiene, food precautions and adequate diet, with special attention to their environment especially the toilet and bathroom, a major source of infection for women during pregnancy.

REFERENCES

Adesokan FOO (2011). Reproductive Health for All Ages. 1st ed. Ekiti: O'artifact.

Almushait MA, Mohammed A, Al-Harty A, Abdullah AM (2013). Prevelance and Predisposing Factors of Urinary Tract Infections among Pregnant Women in Abdha General Hospital.Retrieved on January 21, 2014 from http://www.worldwidescience.org/topicpage/.

Azuogu VC, Azuogu BN, Nwonwu EU (2011). Factors Affecting Utilization of Skilled Provider Antenatal care in the Rural communities of Ebonyi State, Nigeria. West African Journal of Nursing. 22(1):75.

Barss VA (2013). Avioding Infection in Pregnancy: Beyond Basics. Retrieved on October 3, 2013, fromhttp://www.update.com/content/.

Center for Disease Control with Prevention (2010).Sexual Transmitted Diseases and Pregnancy- CDC Fact Sheet.Retrieved on January 21, 2014 from http://www.cdc.gov/gov/std/pregnancy /stdfact/preg.

Dean, J, Kendall P (2014). Food safety during pregnancy.Retrieved on January 21, 2014 from http://www.ext.colostate.edu/[ubs/foodnut.

Dwyer JM (2001). High risk sexual behaviour and genital infection during pregnancy.Pubmed. 48(4):233-240. Retrieved on January 21, 2014 from http://www.ncbi.nlm.gov/pubmed/117757/.

Fraser DM, Cooper MA, Nolte AG (2008). Myles Textbook for Midwives.African Edition. Elsevier: South Africa.

Gravett CA, Gravett MG, Martin ET, Benson JD, Khan S, Boyle DS, Lannon SM, Patterson J, Rubens CE, Steele MS (2012). Serious and life threatening infections: opportunities to reduce the global burden. J. pmed. Retrieved on October 3, 2013, from http:// www.researchgate.net/publications/23..

Higgins P, Frank B, Brown M (2009).Changes in health behaviours made by pregnant women. Retrieved June 18, 2013, fromhttp://www.tandfonline.com/doi/pdf/10.1080/07399393394095/16106

Halpin HA, Maria MM, Martin-Moreno JM (2010).Chronic Disease Prevention and the New Public Health. Publish health reviews. (32), 120-154.ISSN 2107-6952. Retrieved June 18, 2013, from http://www.publichealthreviewers.en/show/f/24.

Kidsport Team (2013). Lifestyle changes during pregnancy. Retrieved on June 17, 2013 from http://www.kidspot.co.nz/article.

Kost K, Landry DJ, Darroch JE (1998). Predicting maternal behaviours during pregnancy.Retrieved on December 21, 2013 from http://www.guttacher.org/pubs/journals/3007998.html.

Labspace (2013). Health education and Mobilization Heat model: The chain of infection. Retrieved on February 11, 2014, from http://www.labspace.open.ac.uk/content...

Medicine Net (2011). Pregnancy:Embryo definition ,Fetus definition ,Trimester definition. Retrieved on January 12, 2014, from http://en.wikipedia.org/wiki/Pregnancy.

Ndidi EP, Oseremen O (2011). Reasons Given by Women for late Initiation of Antenatal care In Niger Delta, Nigeria. Ghana Med J.

45(3):132.
Obinna, C, Olowoopejo M (2013).Nigeria Maternal death record in 3months.Society of Gynaecology and Obstsetrics. Retrieved on June 19, 2013, from http://www.vanguard.ng.com.
Olufunmilayo OA, Olusola AA (2011). Socio-cultural factors affecting utilization of health services by women of reproductive age in AgbowaIkosi, Epe LGA, Lagos State. West African Journal of Nursing. 22(2):16.
Rabiu KA, Adewunmi AA, Akinlusi FM, Akinola OI (2013). Female reproductive tract infections: under standings and care see king behavior among women of reproductive age in Lagos, Nigeria.
Robinson SM, Crozier SR, Borland SE, Godfrey KM, Cooper C, Linskip HM (2009). Do women change their health behaviours in pregnancy? Findings from the Southampton women survey.Retrieved from http://www.nih.gov/pubmed.
Smedley J, Jancy J, Dhaliwal S, Zhao T, Monteiro SM, Howard P (2013). Women's Reported Health Behaviours before and during pregnancy. A retrospective study.Retrieved on December 21, 2013, from http://www. hej.sugepub.com./content/early/.
Siffedin A (2012). Study: Four Conditions cause most Pregnancy-Related Infections. Retrieved on Dec 21, 2013, from http://www. healthland.times.com/2012/10/10.
Tamasi L, Horvath I, Bohacs A (2011). Respiratory Med: Asthma in pregnancy and Immunological changes and clinical management. 405, 159-165. Elsevier.Retrieved on June 15, 2013, from http://www.jacknaimsnote.com/2011/09/physioogical-immunosuppression.
WHO (2013).Maternal Mortality Fact Sheet. Media Centre. Retrieved on June 17, 2013, from http://who.int/mediacentre/factsheets.