



Knowledge, Preventive Practices and Risk Perception of HIV Infection among Pregnant Women in a Rural Community of Igbagu, Izzi LGA, Ebonyi State Nigeria

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Authors' contributions

This work was carried out in collaboration between all authors. Author AFU designed the study, performed the statistical analysis, and wrote the first draft of the manuscript. Authors AFU and UM wrote the protocol. Author UM managed the literature searches. Authors CE and LUO wrote up the results. Authors AFU and INO managed discussion and conclusion of the manuscript. All authors read and approved the final manuscript.

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ABSTRACT

Aims: To determine the knowledge, risk and the risk perception predictors of HIV infection among pregnant women in a rural community in Ebonyi State, Nigeria.

Study Design: A descriptive cross-sectional study of rural pregnant women.

Place and Duration of Study: The study was conducted over 11 months (August 2016 – June 2017), in Igbagu community, Izzi Local Government Area of Ebonyi State Nigeria

Methodology: A total of 443 pregnant women on antenatal clinic booking visit were consecutively recruited. A semi structured questionnaire adapted from a validated WHO generic questionnaire on

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HIV/PMTCT was administered by the interviewer.

Data analysis was done using SPSS for window version 22 and p-value was set at $P < 0.05$

Results: HIV awareness level was 68.2% among the pregnant women without prompting. Less than a quarter (20.3%) reported that they were not at risk of HIV infection. About half of the pregnant women's spouses had been counseled for HIV while 36.1% were reported to have received the test. Only 14.2% of the pregnant women had adequate knowledge of HIV/AIDS. None of the women had ever received blood transfusion nor engaged in injection drug use. Age, occupation, educational status, having discussed HIV with someone, awareness of HIV Counseling and Testing and sex partner's HIV test status had statistical significant association with appropriate HIV infection risk perception. Being a seamstress, above 30 years of age, having discussed HIV with someone and being aware of HIV were significant predictors of appropriate HIV infection risk perception.

Conclusion: HIV/AIDS knowledge and appropriate risk perception were low among the rural women. This emphasizes the need for strengthening and prioritizing community-wide engagement and enlightenment on transmission, prevention and treatment of HIV with increased focus on PMTCT especially in rural areas.

Keywords: HIV infection; awareness; sex partner; spouses; rural; pregnant.

1. INTRODUCTION

Mother-to-child transmission (MTCT) of human immunodeficiency virus (HIV) infection remains a major public health problem and constitutes the most important cause of HIV infection in children less than 15 years old in the globe [1]. New infections among children less than 15 years in Nigeria was 36, 000 in 2017 while 86,000 women aged 15 years and above acquired new infection [2]. In 2012, 260,000 children acquired HIV infection in low and middle-income countries and more than 90% of the newly HIV infected children lived in Sub-Saharan Africa, home to 92% of pregnant women living with HIV [3]. Nigeria accounts for about 10% of all HIV/AIDS cases in the world [4]. Sixty percent of new infections occur in the 15 - 25-year-old age group but the prevalence is highest among productive young people between the ages of 20 - 29 years [5,6]. According to 2014 National HIV sero-prevalence sentinel survey among pregnant women attending antenatal clinics in Nigeria, the country has a prevalence of 3.0% [7]. UNAIDS/AIDS info Country fact sheet documented a prevalence of 2.8% in 2017 [8]. This, of course, showed a decline from the prevalence of 3.4% reported by National HIV/AIDS and Reproductive Health Survey (NARHS) 2012 and previous estimates of 3.6% prevalence in 2007 [9,10]. AID related death in 2014 was 174,253; which was lower than 210, 031 AIDS related death reported in 2013 [9,11].

The most effective intervention to reducing transmission from mother-to-child depends on a woman's knowledge of her HIV status [10,12].

Studies have recorded good level of general knowledge of HIV/AIDS but knowledge on the modes of vertical transmission have been discouraging [12,13]. Individuals' knowledge of HIV transmission and accurate assessment of their own risk seem to be among the key factors in adoption of safer sexual practices [13].

The perceived susceptibility to HIV infection among individuals compared to the actual risk is a major challenge in HIV prevention campaigns [12]. HIV risk perception has been identified as an important antecedent for one's adoption of protective behaviour against contracting the disease [14]. A study done among pregnant women in Abakaliki urban, Ebonyi State revealed a low risk perception of HIV infection among the respondents, only 2% of respondents believed they were at high risk for HIV/AIDS [15]. One begins to wonder what is obtainable in the rural community as regards knowledge and risk perception of HIV among pregnant women.

1.1 Objectives

This study was therefore designed to determine the awareness and knowledge of HIV/AIDS, HIV infection risk perception and predictors among pregnant women of rural a community in Ebonyi State.

2. METHODOLOGY

2.1 Study Area

The study was carried out in the rural community of Igbagu in Izzi Local Government Area of

Ebonyi State, South East Nigeria. The community is made up of 4 villages with a combined population of 22,855 [16]. Two health facilities in the community were used for this study. Comprehensive HIV services including Prevention of Mother to Child Transmission (PMTCT) and antenatal care (ANC), for pregnant women are among the health care services available at these health facilities. These centres were chosen because they were the only primary health care facilities in the state with manpower and infrastructural capacity to offer comprehensive HIV services in a rural setting at the time of the study.

2.2 Study Design

The study was a descriptive cross sectional study. Participants in the study were pregnant women who came for ANC booking at two selected health facilities in a rural community. The study lasted for 11 months.

2.3 Sampling Technique

The minimum sample size was determined using the formula for single proportion for infinite population [17] with predetermined adequate knowledge of HIV vertical transmission (during pregnancy) prevalence of approximately 60% [18]. An estimated sample size of 369 was obtained and taking the non response rate of 20% (74), a total sample size of 443 was arrived at. Pregnant women recruited for the study were those who came for ANC booking visit in either facility in order to avoid duplication of respondents since the study extends for over a period of time within which a respondent could repeat routine ANC visits.

The two facilities ran two ANC days per week; one for booking and the other for routine ANC visits. Proportional sampling technique was used to select the sample. With the assistance of nurse-midwives pretrained in the data collection for the study, the participants were recruited consecutively into the study as they come for ANC booking after obtaining their informed consent in the respective health facilities until the desired sample size was attained.

A semi structured questionnaire adapted from a validated WHO generic questionnaire on HIV/PMTCT was administered by the interviewer [19,20]. The questionnaire comprised of 3 parts: A, B and C. Session A contained questions for sociodemographic data; session B had questions on awareness and general knowledge of

HIV/AIDS as well as HIV infection risk perception while session C was concerned with HIV infection preventive practices. In determining the pregnant women's HIV knowledge, 10 questions comprising of 37 responses and constructed to meet their understanding were used. These questions centred on the modes of HIV transmission including timing of MTCT, risk reduction strategies including PMTCT as well as advantages of taking ART. They were used to compute a composite score for each respondent. This was converted to percentages and using the mid-point mark, the score were categorized broadly into two namely: "Inadequate" and "Adequate" HIV knowledge (corresponding to score < 50% and \geq 50% respectively). HIV risk perception was evaluated using specific questions. Reasons for the pregnant women's perception of such risk levels were also obtained.

2.4 Statistical Analysis

SPSS for window version 22 was used for the data analysis [21]. Descriptive statistics of the variables were done and presented in frequency tables and proportions. Cross tabulations were used to obtain the Chi-square and *P*-values in statistical tests of associations and the level of significance respectively for relevant variables. Multivariate binary logistic regression analysis was conducted to examine the predictors of appropriate HIV infection risk perception by the pregnant women. Variables that were fitted into the regression model were those that come out with *P*-value \leq 0.1 on bivariate analysis. Inferences were drawn using 95% confidence intervals at *P*-value < 0.05 level of significance for the respective test statistics.

3. RESULTS

Over 60% of the 443 pregnant women knew the modes of transmission of HIV except for transmission through unsafe blood transfusion which was known to 162 (36.6%). Two hundred and seventy six (62.8%) pregnant women, gave correct response to being faithful to ones partner as a preventive measure for HIV transmission. Less than 50% knew about other preventive measures especially safe blood transfusion 7 (1.6%) and access to good PMTCT services 4 (1.0%). Also, less than 30% had knowledge of PMTCT services. The periods of occurrence of MTCT were known to less than half of the pregnant women. Furthermore, less than 30% of them gave correct responses to questions on MTCT risk reduction measure (See Table 1).

Table 1. Responses to questions for HIV knowledge assessment of pregnant women

Variable		Responses N = 443	
		Correct N (%)	Wrong N (%)
Mode of HIV transmission	Having unprotected sexual intercourse	356 (80.4)	87 (19.6)
	From mother to child	336 (75.8)	87 (19.6)
	Sharing of contaminated sharp instruments	282 (63.7)	161 (36.3)
	Through unsafe blood transfusion	162 (36.6)	281 (63.4)
Prevention of HIV transmission	Be faithful to one's partner	278 (62.8)	165 (37.2)
	Avoid sharing of sharp instruments	201 (45.4)	242 (54.6)
	Abstinence from sexual intercourse	141 (31.8)	302 (68.1)
	Correct condom use	108 (24.4)	335 (75.6)
	Safe blood transfusion	7 (1.6)	436 (98.4)
	Access to good PMTCT services	4 (1.0)	439 (99.1)
It is possible that a healthy looking person may have HIV infection		257 (58.0)	186 (42.0)
	HIV cannot be cured	280 (63.2)	163 (36.8)
HIV infection can be confirmed by getting tested		299 (76.5)	144 (32.5)
Knowledge of PMTCT services	HCT	160 (36.1)	284 (76.1)
	Infant feeding options	121 (27.3)	322 (72.7)
	Treatment for HIV infected pregnant mothers	119 (26.9)	324 (73.1)
	ARV prophylaxis for exposed infants	80 (18.1)	363 (81.9)
	Family planning	45 (10.2)	398 (89.8)
Occurrence of MTCT	MTCT can occur in pregnancy	224 (50.6)	219 (49.4)
	MTCT can occur during labour	172 (38.8)	271 (61.2)
	MTCT can occur during breastfeeding	219 (49.4)	224 (50.6)
Risk reduction of MTCT during pregnancy	Take ART as prescribed by health workers	121 (27.3)	322 (72.7)
	Seek good ANC and PMTCT services	114 (25.7)	329 (74.3)
	Good nutrition for mother	44 (9.9)	399 (90.1)
	Use of condom (safe sex)	17 (3.8)	426 (96.2)
	Abstinence from unprotected sex	9 (2.0)	434 (98.0)
Risk reduction of MTCT during labour and delivery	Delivery in health facility by skilled birth attendants	94 (21.2)	349 (78.8)
	Take ART as prescribed in the health facility	86 (19.4)	357 (80.6)
	Seeking good management during labour	65 (14.7)	358 (85.3)
	Avoid prolonged labour	33 (7.4)	410 (72.6)
	Elective Caesarean section	28 (6.3)	415 (93.7)
	Avoid pushing unless instructed to by skilled birth attendant	19 (4.3)	424 (95.7)
Risk reduction of MTCT during breastfeeding	Continue ART uninterrupted	102 (23.0)	341 (77.0)
	Give baby ART as	91 (20.5)	352 (79.5)
	Give breast milk only	58 (13.1)	385 (86.9)
	Keep post natal appointments	56 (12.6)	385 (87.4)
	Avoid mixed feeding	45 (10.2)	398 (89.8)

Out of the 443 pregnant women, 302 (68.2%) were aware of HIV infection without prompting. Only 63 (14.2%) of them had adequate knowledge of HIV infection, whereas less than a quarter 90 (20.3%) had appropriate HIV infection risk perception. They gave various reasons for such perception, commonest of which was fear of partner's infidelity or male partner having multiple sex partners 33 (36.7%). The least reasons given by 9 (10.0%) pregnant women respectively were that they have multiple sex partner and those whose partners were already infected with HIV. Among those who believed that they cannot contact the infection, 126 (35.7%) do not have multiple sex partners followed by those who claimed that they had faithful partners 114 (32.2%). Eighty eight

(19.9%) pregnant women had ever discussed risk of contacting the infection with someone else (Table 2).

Statistical significant relationship existed between HIV infection risk perception and the pregnant women's age groupings, occupation and educational status ($P < 0.05$). The proportion of women who had appropriate risk perception of HIV infection was greatest among those aged 31 – 40 years. Highest proportion of respondent who did not believe that they were at risk of the infection was found among those who were less than 21 years 41(80.4%). Similarly, women who practice traditional religion reported that they were at less risk of contacting HIV infection 15 (93.8%) compared to the Christians 338 (79.2%)

Table 2. HIV infection awareness, knowledge and risk perception

Variables/responses	Frequencies	Percentage
Respondent has heard about HIV without prompting		
Yes	302	68.2
No	141	31.8
HIV knowledge		
Adequate	63	14.2%
Inadequate	380	85.8%
At risk of contacting HIV (N = 443)		
Yes	90	20.3
No	353	79.7
HIV infection is possible because respondent (N = 90)		
Have multiple sex partners	9	10.0
Do have unprotected sexual intercourse	12	13.3
Partner is infected	9	10.0
Do not trust sex partner	33	36.7
Partner has multiple sex partner	17	18.7
Do share sharps with other persons	10	11.1
Reasons why respondent cannot contact HIV infection N = (353)		
Abstinence	60	17.0
Have only one partner	126	35.7
Use condom always	6	1.7
Partner is faithful	114	32.3
It can't happen to me	47	13.3

Table 3. Relationship between respondent's sociodemographic characteristics and HIV risk perception

Variable	HIV infection risk perception [Frequency (%)]			χ^2(P--value)
	At risk of infection	Not at risk of infection	Total (N = 443)	
Age groups (years)				
<21	10 (19.6)	41 (80.4)	51	12.78 (0.006)
21 -30	50 (23.1)	166 (76.9)	216	
31 – 40	17 (31.5)	37 (68.5)	54	
>40	53 (43.4)	69 (56.6)	122	
Respondent's religion				
Christianity	89 (20.8)	338 (79.2)	427	2.03 (0.13)
Traditionalist	1 (6.2)	15 (93.8)	16	
Occupation				
Trader	34 (16.3)	174 (83.7)	208	10.13 (0.04)
Farmer	22 (23.2)	73 (76.8)	95	
Civil servnat	15 (30.6)	34 (69.4)	49	
Seamstress	13 (30.2)	30 (79.7)	43	
Hairdresser	6 (12.5)	42 (87.5)	48	
Marital status				
Married	81 (19.6)	332 (84.4)	413	2.92 (0.36)
Single	8 (29.6)	19 (70.4)	27	
Divorced/Separated	1 (33.3)	2 (66.7)	3	
Highest educational attainment				
Graduate/ post graduate	12 (52.2)	11 (47.6)	23	18.58 (< 0.001)
Secondary school	36 (21.2)	134 (78.8)	170	
Primary school	34 (19.2)	143 (80.8)	177	
No formal education	8 (11.0)	65 (89.0)	73	

among them. Within the occupational group, hairdressers had the highest proportion 42 (87.5%), of pregnant women who do not believe they could get infected with HIV compared to other groups. However, there was no statistical significant relationship between HIV risk perception and the pregnant women's religion and marital status ($P > 0.05$) (These are shown on Table 3).

Greater proportion of pregnant women who had adequate knowledge of HIV 18 (28.6%) had appropriate perception of risk of HIV infection compared to those with inadequate knowledge 72 (18.9%). Proportions of pregnant women with appropriate risk perception were greater among those who had attended ANC at formal health

facility 77 (21.5%); those who were aware of HIV 37 (27.6%); discussed risk of HIV with someone else 31 (42.0%); had heard about HCT 79 (26.2%); had been screened for HIV 60 (27.0%); received HCT in a public hospital 54 (28.6%); sex partner had been screened 41 (28.6%) and those who shared their HIV screening result with their sex partner 37 (27.6%). There were very strong statistical significant association between the pregnant women's HIV risk perception and having discussed their risk of HIV infection with someone else, having heard of HCT and having been screened for HIV infection, ($P < 0.001$). Statistical significant relationship was also found between risk perception and the HIV screening status of the pregnant women's sex partner ($P = 0.03$) (See Table 4).

Table 4. Relationship between pregnant women's HIV infection risk perception and HIV knowledge/other HIV related issues

Variable	Perception of risk of HIV infection [Frequency (%)]			χ^2 (P--value)
	At risk of infection	Not at risk of infection	Total (N = 443)	
Knowledge of HIV				
Adequate knowledge	18 (28.6)	45 (71.4)	63	3.09 (0.08)
Inadequate knowledge	72 (18.9)	308 (81.1)	380	
Place of ANC attendance				
Formal health facility	77 (21.5)	281 (78.5)	358	1.53 (0.13)
Traditional birth attendance	13 (15.3)	72 (84.7)	85	
Awareness of HIV				
Yes	37 (27.6)	97 (72.4)	134	0.79 (0.27)
No	5 (19.2)	21 (80.8)	309	
Discussed risk of HIV with someone else				
Yes	31 (42.0)	51 (58.0)	88	32.03 (< 0.001)
No	53 (14.9)	302 (85.1)	355	
Respondent had heard of HCT				
Yes	79 (26.2)	223 (73.8)	302	29.01 (< 0.001)
No	11 (7.8)	130 (92.2)	141	
Respondent had been screened for HIV				
Yes	60 (27.0)	162 (73.0)	222	12.38 (< 0.001)
No	30 (13.6)	191 (66.4)	221	
Place respondent was screened for HIV				
During health workers community mobilization visit	5 (17.9)	23 (82.1)	28	1.55 (0.53)
In a public hospital	54 (28.6)	135 (71.4)	189	
In private hospital	1 (20)	4 (80.0)	5	
Pregnant women's sex partner had been screened for HIV infection				
Yes	41 (25.6)	119 (74.4)	160	4.36 (0.03)
No	90 (20.3)	353 (79.7)	283	
Pregnant women's sex partner shares screening result with her				
Yes	37 (27.6)	97 (72.4)	134	0.79 (0.27)
No	5 (19.2)	21 (80.8)	26	

The research revealed that the pregnant women had never received blood transfusion nor ever indulged in injection (illicit) drug use. Majority 278 (62.8%) were faithful to their partners while 201 (45.4%) did not share sharp objects. Only 141 (31.7%) of the women abstained from premarital sex while 108 (24.4%) practiced safe sex by using condom (See Table 5).

A binary logistic regression model showed statistical significant prediction/explanation of HIV infection risk perception by some age groups, an occupational group, pregnant women who discussed HIV risk with someone else, being aware of HCT and partner testing. Within the age groups, women aged between 30 - 40 years were twice as likely as those below 21 years to know that every pregnant woman is a risk of HIV infection (AOR = 2.1; CI = 1.00 –

4.87; $P = 0.05$), while those above 40 years of age were 3 times more likely to hold such perception (AOR = 3.3; CI = 1.35 – 8.13; $P = 0.009$). Within the occupational group, being a seamstress had a 3 fold likelihood of appropriate HIV infection risk perception compared to being a hairdresser, (AOR = 3.35; CI = 1.06 – 10.57). Pregnant women who had discussed risk of HIV infection with someone else were about 4 times more likely to know that they are at risk of getting HIV infection (AOR = 3.78; CI 2.18 – 6.64). Those who were aware of HCT and others whose partners had been screened of HIV were about 4 and 2 times more likely to have such an appropriate perception respectively. Educational status and having had HCT as well as some other age and occupational groups were not significant at predicting HIV risk perception among the pregnant women (See Table 6).

Table 5. Pregnant women’s practice of HIV prevention

Variable	Frequency N = 443	Percentage
Had never had blood transfusion	443	100
Did not engage in injection drug use	443	100
Had only one sex partner	278	62.8
Did not share sharp objects (needle, syringe, razor, etc)	201	45.4
Abstained from premarital sexual intercourse	141	31.7
Engaged in safe sex (used condom)	108	24.4

Table 6. Binary logistic regression model for predictors of appropriate HIV infection risk perception among the pregnant women

Variable	Wald statistics (χ^2)	df	P-value	AOR (CI)
Age group (< 21years)	Constant			
Age group (21 – 30years)	1.43	1	0.23	1.96 (0.65 – 5.92)
Age group (31 – 40 years)	3.70	1	0.05	2.1 (1.00 – 4.87)
Age group (> 40years)	6.79	1	0.009	3.3 (1.35 – 8.13)
Occupation (Hairdresser)	Constant			
Occupation (Seamstress)	4.23	1	0.04	3.35 (1.06 – 10.57)
Occupation (Farmer)	1.92	1	0.17	2.08 (0.73 – 5.87)
Occupation (Trader)	0.95	1	0.33	1.67 (0.60 – 4.70)
Occupation (Civil servant)	0.83	1	0.36	1.77 (0.52 – 6.05)
No formal education	Constant			
Education (Post secondary)	2.26	1	0.13	0.29 (0.07 – 12.03)
Education (Secondary)	0.09	1	.077	1.15 (0.44 – 3.01)
Education (Primary)	0.40	1	0.53	1.34 (0.54 – 3.33)
Discussed HIV with someone (Yes)	21.50	1	<0.001	3.78 (2.16 – 6.64)
Aware of HCT (Yes)	9.16	1	0.002	3.61 (1.57 – 8.29)
Having ever had HCT (Yes)	0.96	1	0.33	1.44 (0.70 – 2.98)
Partner has had HCT (Yes)	3.86	1	0.05	1.98 (1.00 – 3.90)

4. DISCUSSION

The findings from this study revealed that 302 (68.2%) respondents were aware or had heard of HIV without being prompted. This is in contrast to studies conducted in different parts of Nigeria and Ethiopia which found that 100% of the pregnant and non-pregnant women surveyed were aware of HIV [22-25]. The difference in awareness and knowledge could be because the other studies were conducted in urban areas where the people are more likely to be educated and exposed to information on HIV than in the rural areas. Additionally, this study surveyed only booking clients, many of whom may not have been exposed to ANC health talks, 56.5% of whom had no formal or only primary education. This is in contrast to the other studies that surveyed more educated pregnant women who were on routine ANC visits and hence may have been more exposed to information on HIV via ANC health education. The sexual route was the most commonly known route of HIV infection mentioned by 80.4% of the women similar to that seen in other studies [22-30]. It was however disturbing to find that 42% and 63.4% of the respondents did not know that a healthy looking person could be HIV infected and that HIV can be transmitted by unsafe blood transfusion respectively. In contrast, a similar study conducted in Ogun State Nigeria showed that 85% of the respondents believed a healthy looking person could be HIV-infected [31]. Other studies carried out in Nigerian cities of Osogbo, Sagamu, Abakaliki and Awka as well as in Iran showed higher awareness of blood transfusion as a route of HIV infection [15,23-25,27]. Faithfulness to one's partner and non-sharing of sharp instruments were the most commonly identified ways of preventing HIV infection while safe blood transfusion and access to good PMTCT services were the least identified strategy. Although 75.8% of the respondents knew that HIV could be transmitted from mother to child, there was poor knowledge on the periods of occurrence of MTCT, MTCT reduction strategies and PMTCT services among the respondents. This could be because of poor general knowledge of HIV as seen in this study and lack of ANC health talk information on HIV by these booking clients as non-access to ANC health talks have been found to be associated with reduced knowledge on MTCT of HIV [22,32]. Therefore, there is need to sensitize the rural women of child bearing age on reproductive issues including HIV prevention using other platforms such as community based women

organization, town hall meeting and religious organization. MTCT during pregnancy was the most identified (50.8% of respondents), in contrast to other studies that found MTCT during delivery to be the most commonly identified period of MTCT [22,24,30]. Only 27.4% of the respondents knew that ART use during pregnancy, labour/delivery and breastfeeding could reduce MTCT of HIV. However, other similar studies in Ibadan and Sagamu in western region in Nigeria, showed that more respondents knew of ART use in PMTCT than that seen in our study [32,33]. Some studies have also shown poor pregnant women's knowledge of MTCT and PMTCT [1,9,10,12], while some others have shown good knowledge [23,25,32,34]. This emphasizes the need to strengthen information dissemination and education activities on HIV and prevention of mother to child transmission among women in rural communities.

Ninety (20.3%) respondents in our study perceived themselves to be at risk of contracting HIV. Similar proportions were found in an Indian study where 19.4% of women perceived themselves to be at risk of HIV infection [35]. The finding in this study is higher than that found in another study conducted in Abakaliki (the state capital and an urban area about 20 km away from Igbagu where this study was carried out) in which only 2% of respondents believed they were at high risk of contracting HIV infection [15]. The lower proportion in the Abakaliki study could be because it assessed perception of high or low risk of HIV infection and not the non-categorized risk perception determined from our study. Most of the respondents perceived themselves to be at risk because of distrust for their partner and because their partner had multiple sex partners. On the contrary, the study found out that having only one faithful partner was generally cited as reason for the low risk perception similar to another study conducted in Ebonyi State [15]. The imperative of antenatal clinic attendance in formal health facilities where health talks can be given to the pregnant women is evident in this study as majority of those who had appropriate infection risk perception were women who received antenatal care from suitably qualified health workers in formal health facilities. It is particularly bothersome that 13.3% of the respondents believe that they can never contract HIV probably due to the low awareness and poor knowledge of HIV transmission and prevention. This re-emphasizes the need for community-wide sensitization on HIV prevention and treatment with male partner involvement in order to

promote PMTCT and reduce HIV prevalence in Nigeria.

Self-perceived risk for HIV infection was significantly associated with age groupings, occupation, educational status, having discussed risk of HIV infection with someone else, having heard of HCT, having been screened for HIV infection and the HIV screening status of the pregnant women's sex partner. Greater majority of respondents who perceived themselves to be at high risk of HIV infection was found among those more than 40 years old similar to findings from another study carried out in Abakaliki [15]. As seen in this study, the same study in Abakaliki also found out that women with low educational status see themselves as being at low risk of infection. Women aged 31-40 and above 40 years were more likely to perceive themselves to be at risk of HIV infection, hence giving credence to the growing prevalence of HIV among older age groups of women [36]. Being a seamstress had a 3 fold likelihood of believing that a pregnant woman is at risk of contracting HIV infection. This higher likelihood of risk perception could be because of the use of sharps such as needles, razors and scissors in the course of their work. Studies have also reported on the increased vulnerability of apprentice seamstresses to HIV risk-related behaviours [37]. Pregnant women who had discussed risk of HIV with someone else were about 4 times more likely to know that they were at risk of getting HIV infection. Those whose partners had been screened for HIV were about 4 folds more likely to have such a positive perception of being at risk. Male partner involvement is a priority area for PMTCT of HIV as male partners are significant in women's risk of contracting HIV infection. Women in developing countries often require partner support and consent to access HIV prevention and treatment services [38]. Spousal discussion following partner HIV screening could explain the positive risk perception in women whose partners had screened for HIV.

5. CONCLUSION

The findings in this study demonstrate that there were low level of awareness and knowledge on HIV transmission, mother to child transmission and its prevention among pregnant women booking for antenatal care in a rural area of Ebonyi state. Additionally, the perception of being at risk for HIV infection was equally poor and was predicted by age, occupation, and

partner's screening status and discussion of risk with someone else. Community-wide engagement and enlightenment on transmission, prevention and treatment of HIV with increased focus on PMTCT should be strengthened and prioritized especially in rural areas. There should be close collaboration with existing community structures/platforms such as religious groups, age grade associations, social and occupational associations to which many of these women belong in order to also reach pregnant women who may not access antenatal care in formal health settings. Advocacy to community men leaders and associations is also important given the role of male partners in women's risk perception and screening for HIV.

CONSENT

All authors declare that 'written informed consent was obtained from the pregnant women and the health facilities used for this study.

ETHICAL APPROVAL

Ethical approval to conduct this research was sought and obtained from the Research and Ethics Committee of the Federal Teaching Hospital Abakaliki Ebonyi State.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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