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Utilization of Intermittent Preventive Treatment of Malaria in Pregnancy In Rural Areas of Enugu State

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Abstract

Objective: This study focused on the utilization of intermittent preventive treatment of malaria in pregnancy in rural areas of Enugu State

Methods: A descriptive survey was conducted among booked pregnant women (younger & older) in thirteen (13) rural Local Government Areas of Enugu State. Data were collected using a self-structured questionnaire titled "Predictors of Utilization of Intermittent Preventive Treatment of Malaria in Pregnancy Questionnaire (PUIPTPQ)".The research questions were answered using mean scores and standard deviations. In testing the hypotheses at.05 level of significance set for this study, z-test statistic was used.

Results: The responses of the respondents on how parity predicts utilization of IPTp showed that the cluster mean was 2.80 with a corresponding standard deviation of 0.82**.**The responses of the respondents on how level of education predicts utilization of IPTp showed that their cluster mean was 3.02 with a corresponding standard deviation of .83. The responses of the respondents on how employment predicts utilization of IPTp showed that their cluster mean was 3.00 with a corresponding standard deviation of .81.The responses of the respondents on how marital status predicts utilization of IPTp showed that their cluster mean was 3.03 with a corresponding standard deviation of .82. The responses of the respondents on how antenatal visits predict utilization of IPTp showed that their cluster mean was 2.91 with a corresponding standard deviation of .80. The responses of the respondents on how gestational age at booking predicts the utilization of IPTp showed that their cluster mean was 2.95 with a corresponding standard deviation of .83.

Conclusion: The study concluded that factors like parity, level of education, employment status, marital status, scheduled antenatal visits and gestational age at booking affect the utilization of intermittent preventive treatment of malaria among pregnant women in rural areas in Enugu State. Also the hypothesis tested showed that there is no significant difference between the mean ratings of younger and older pregnant women in rural areas of Enugu State on the utilization of

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IPTp based on parity, level of education, employment status, marital status, scheduled antenatal visits and gestational age of pregnancy at booking.

Keywords: Intermittent Preventive Treatment (IPT), Malaria, Pregnancy, Utilization,

Introduction

One of the commonest causes of ill health in Africa according the World Health Organization (WHO, 2018) is malaria. Malaria according to WHO (2018), affects up to 500 million people worldwide annually. It remains the most devastating human parasitic infection in the tropics. Malaria is the second commonest infectious disease with a high mortality rate globally, with the greatest burden of morbidity and mortality in Sub-Saharan Africa (WHO, 2019). It is a life-threatening disease caused by parasites that is transmitted to people through the bites of infected female Anopheles mosquitoes (WHO, 2018). Malaria is also a serious infectious disease caused by parasites of the genus plasmodium and transmitted through the bites of infected female Anopheles mosquitoes (WHO, 2019). According to Amos, Komlan, Ghose and Sanni (2019), malaria kills more than 1 million people annually.

Furthermore, Amos, Komlan, Ghose and Sanni (2019), posited that malaria is a risk for 97% of Nigeria's population because it is endemic while the remaining 3% of the population live in the malaria free highlands. Malaria is the most widespread and persistent disease which affects human populations throughout the world and especially in tropical countries. There are an estimated 100 million malaria cases with over 300,000 deaths per year in Nigeria (WHO, 2016). World Health Organization (2018), reported an estimate of 219 million cases of malaria worldwide, compared with 217 million cases in 2016 with majority (92%) of the cases occurring in African region. Out of the fifteen countries in Sub-Saharan Africa with almost 80% of the global malaria burden, 5 countries accounted for nearly half of all the malaria cases: Nigeria with 25% tops the list followed by Democratic Republic of the Congo (11%), Mozambique (5%), and Uganda (4%), (Bello and Oni, 2020).

Malaria related deaths account for up to 11% of maternal mortality thus resulting in 300,000 pregnant women deaths annually and an estimated 30 million women living in malaria endemic areas of Africa become pregnant each year (Dellicour, Tatem, Guerra, 2010 in Osaro, Abdullahi, Tosan and Charles, 2019). Consequently, Bello and Oni (2020) stated that pregnant women are particularly vulnerable to malaria because pregnancy reduces immunity against malaria and increases susceptibility to malaria infection. Complications associated with malaria in pregnancy include maternal anaemia, premature delivery and low birth weight which may in turn lead to increased child mortality. The prevention of malaria remains a challenge in countries such as Nigeria where the infection is endemic.

Malaria in Pregnancy (MIP) is a major contributor to adverse maternal and prenatal outcome. MIP is associated with adverse pregnancy outcomes in the mother, her foetus and the newborn. MIP is associated with a high rate of maternal and perinatal morbidity and mortality including maternal and fetal anemia, stillbirth, premature delivery and low birth weight (Agboghoroma,

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2014). In Nigeria, 97% of the populations are at risk, with pregnant women having 4 times higher increased risk due to changes in their hormone levels with reduction in immunity to malaria and the physiological changes of increased blood flow to the skin which promote attractiveness to mosquitoes (United States Agency for International Development (USAID), 2017). It was estimated that 10,000 women and 100,000 infants die as a result of MIP (WHO, 2017). In hyper endemic areas like Nigeria, it is a common cause of anaemia in pregnancy and may be aggravated by poor socio-economic circumstance of the pregnant women (Osaro, Abdullahi, Tosan and Charles, 2019) and pregnant women continue to be at increased risk of plasmodium falciparum infection, and thus is harmful on both mother and foetus (Steketee, Nahlen, Parise and Menendez, 2001in Quakyi, Tornyigah, Houze, Kusi, Coleman, Escriou, Laar, Cot, Fobil, Asare, Deloron, Anang, Cottrell, Ofori and Ndam, 2019). It is as a result of these risks associated with malaria infection especially among pregnant women that WHO (2019) recommended a package of malaria control interventions during pregnancy which includes the use of insecticide-treated nets (ITNs), intermittent preventive treatment (IPT) and effective case management of malaria illness and anaemia.

The study focused on intermittent preventive treatment of malaria using Sulphadoxine-pyrime thamine (IPTp-SP) because, apart from the strategic importance of the procedure for safety of pregnant mother and unborn child, among other reasons, some studies including On ok a, Hanson and On wujekwe (2012), had reported that its coverage remains low. Hence, the need for this to determine the utilization of Intermittent Preventive Treatment of malaria in Pregnancy (IPTp) of malaria in pregnancy.

Materials and Methods

Descriptive survey design was adopted for the study to ascertain the utilization of intermittent preventive treatment of malaria in pregnancy in rural areas of Enugu State in the South Eastern Nigeria. Six research questions guided the study and six null hypotheses tested using inferential statistics of Z-test. Study population consists of 5,042 booked pregnant women in thirteen (13) rural Local Government Areas of Enugu State. The sample size was 504 pregnant women (younger and older) due for delivery selected from booked antenatal mothers attending antenatal clinic in the primary health facilities of Enugu State. Multi-stage sampling techniques was used to draw the sample. The instrument for data collection was self-structured questionnaire titled "Predictors of Utilization of Intermittent Preventive Treatment of Malaria in Pregnancy Questionnaire (PUIPTPQ)". The validity of the instrument was ascertained by three research experts. To ascertain the internal consistency of the instrument, the instrument was administered to 40 (26 younger and 14 older) pregnant women in rural areas in Anambra State. Their responses to the various items of the questionnaire were analysed with the use of Cronbach alpha statistic. The computation yielded .78 for cluster A, .80 for cluster B, .81 for cluster C, .79 for cluster D, .81 for cluster E and .80 for cluster F. The instrument had an overall reliability index of .80 which shows that the instrument is reliable and, therefore, considered appropriate for use. Ethical clearance was obtained from Enugu State Ministry of Health, Nigeria.

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A total of 504 copies of the questionnaire were distributed, 491 however were retrieved, making the response rate 97.42%. The research questions were answered using mean scores and standard deviation while the hypotheses were tested at.05 level of significance with z-test statistic. The rating of the mean scores was based on real limit of numbers with a response option of Very Great Extent (VGE) = 3.50-4.00; great Extent (GE) = 2.50-3.49; Low Extent (LE) = 1.50-2.49; Very Low Extent (VLE) = 0.00-1.49

Results

1. Research Question1: To what extent does parity affect the utilization of IPTp among pregnant women in rural areas in Enugu State?

Table1: Extent to which parity affects utilization of IPTp among younger and older pregnant women in rural areas of Enugu State.

	ITEMS	**Younger Pregnant Women (359)**			**Older Pregnant Women (132)**		
s/n	**Parity predicts the utilization of IPTp in the following ways:**	Ẍ	SD	Dec	Ẍ	SD	Dec
8	I book for antenatal care at a health facility whenever I am pregnant	3.03	.833	GE	2.98	.833	GE
9	I attend scheduled antenatal clinic regularly (upto 4 visits in each preg.)	3.08	.817	GE	2.97	.810	GE
10	I take any IPTp-Sp prescribed for me	2.99	.831	GE	3.02	.824	GE
11	I receive IPTp 2nd& order doses at every monthly interval	2.96	.818	GE	2.91	.776	GE
12	I receive IPTp-Sp 2nd& order doses at every week interval	3.03	.828	GE	3.02	.815	GE
13	I collect my own IPTp-Sp whenever available in my health facility	2.98	.839	GE	2.92	.847	GE
14	I follow every instruction on how and when to take IPTp-Sp	2.98	.808	GE	2.92	.820	GE
15	I take IPTp-Sp whenever I am not infected with malaria only	2.95	.822	GE	2.96	.868	GE
16	I take IPTp-Sp whether or not I have malaria	3.08	.814	GE	2.98	.856	GE
17	I take IPTp-Sp in the first trimester	2.97	.823	GE	3.05	.832	GE
18	I receive the first dose of IPTp-Sp in the second trimester	3.01	.800	GE	2.97	.800	GE
19	I take IPT-Sp first dose in the third trimester of every pregnancy	1.44	.822	VLE	0.96	.805	VLE
20	I take IPTp-Sp immediately at the antenatal clinic under the Direct Observe Therapy (DOT)	0.58	.832	VLE	0.52	.810	VLE
21	I recommend the uptake of IPTp-Sp to my friends who are pregnant	2.01	.807	LE	2.00	.851	LE
22	I take IPTp-Sp with or without food	2.05	.795	LE	2.01	.824	LE
23	I receive IPTp-Sp till time of delivery	3.01	.794	GE	3.04	.823	GE
24	I receive at least 3 doses of IPTp-Sp in every pregnancy	2.06	.820	LE	2.04	.798	LE
25	I do not take IPTp-Sp if I am receiving co-trimaxazole (septrin)	2.01	.794	LE	2.03	.756	LE
26	I tolerate IPTp-Sp side effects	3.03	.806	GE	2.85	.833	GE
27	I receive at least 2 doses of IPTp-Sp every pregnancy	2.95	.812	GE	2.93	.812	GE
28	I do not use IPTp-Sp because it is not part of ANC services in my health facility	2.98	.815	GE	2.98	.829	GE
29	I do not take IPTp-Sp in the 1st trimester	2.96	.790	GE	2.91	.786	GE

30	I have no concern about IPTp-Sp safety from 2nd trimester	3.06	.807	GE	3.11	.768	GE
31	I receive at least 1 dose of IPTp-Sp in every pregnancy	3.01	.784	GE	2.97	.837	GE
32	I do not take prescribed IPTp-Sp in the health facility	3.04	.809	GE	3.11	.813	GE
33	I take 3 tablets of IPTp-Sp at once whenever I am taking it	2.99	.796	GE	2.92	.844	GE
34	I take my routine folic acid a dose daily together with SP without fear of drug reaction	3.11	.819	GE	2.96	.833	GE
35	I will continue to receive IPTp-SP from my health facility at every pregnancy until the usage is stopped	2.98	.801	GE	3.01	.824	GE
36	I observe compliance of receiving my IPTp-SP with regular attendance to my scheduled antenatal visit	2.98	.815	GE	3.02	.741	GE
37	I buy prescribed IPTp-SP when out of stock in the health and bring back to the ANC for confirmation	3.03	.830	GE	2.99	.833	GE
38	I pay for malaria test whenever I present at ANC clinic with symptoms of malaria for them to know if I will take IPTp-SP for malaria prevention or malaria clinical management drugs	3.04	.819	GE	2.98	.815	GE
39	I receive IPTp-SP for malaria prevention whenever I tested negative	2.98	.829	GE	2.96	.823	GE
40	I do not receive IPTp-SP when I tested positive	3.01	.829	GE	2.78	.755	GE
41	I do not take un prescribed IPTp-SP doses at home	2.99	.805	GE	3.08	.801	GE
42	I do have mild and transient side effects of nausea, vomiting, weakness and dizziness with 1st dose of IPTp-SP	2.98	.791	GE	3.04	.842	GE
43	I noticed IPTp-SP side effect decreases with the administration of further doses	2.92	.811	GE	2.92	.847	GE
44	I cannot recommend the uptake of IPTp-SP to my friends who are pregnant	3.07	.828	GE	2.94	.827	GE
45	I do take IPTp-SP when receiving cotrimoxazole (septrin)	2.99	.824	GE	2.97	.791	GE
46	I do take IPTp-SP because I react to sulphur	3.01	.805	GE	3.02	.810	GE
47	I take prescribed IPTp-SP alternative that has no sulphur	3.00	.800	GE	3.05	.804	GE
48	I take IPTp-SP because I understand it prevents adverse effects of malaria on maternal and fetal outcomes	2.99	.839	GE	3.02	.829	GE
49	I discuss any side effect of IPTp-SP I observe with the ANC clinic nurse	2.94	.808	GE	2.95	.828	GE
50	I feel IPTp-SP is cheap and effective	2.97	.828	GE	2.98	.829	GE
	Cluster Mean = 2.80	**STANDARD DEVIATION = .82**					

Table 1 shows the summary of the extent to which parity affects the utilization of IPTp among pregnant women in rural areas. The responses of the respondents showed that the cluster mean was 2.80 with a corresponding standard deviation of .82. This set of scores on the items above is an indication that parity affects the utilization of IPTp to a great extent among the pregnant women in rural areas of Enugu State.

Research Question2. To what extent does level of education affect the utilization of IPTp among pregnant women in rural areas in Enugu State?

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Table 2: Extent to which Level of education affects the utilization of IPTp among younger and older pregnant women in rural areas of Enugu State.

	ITEMS	Younger Preg Women 359			Older Preg Women 132		
s/n	**Level of education predicts the utilization of IPTp in the following ways:**	Ẍ	SD	Dec	Ẍ	SD	Dec
8	I book for antenatal care at a health facility whenever I am pregnant	2.96	.873	GE	3.07	.815	GE
9	I attend scheduled antenatal clinic regularly (upto 4 visits in each preg.)	2.95	.840	GE	3.10	.827	GE
10	I take any IPTp-Sp prescribed for me	2.96	.852	GE	3.07	.833	GE
11	I receive IPTp 2nd& order doses at every monthly interval	2.89	.867	GE	2.96	.803	GE
12	I receive IPTp-Sp 2nd& order doses at every week interval	3.16	.781	GE	3.02	.837	GE
13	I collect my own IPTp-Sp whenever available in my health facility	3.04	.852	GE	2.97	.841	GE
14	I follow every instruction on how and when to take IPTp-Sp	2.89	.824	GE	3.00	.814	GE
15	I take IPTp-Sp whenever I am not infected with malaria only	2.80	.724	GE	3.02	.833	GE
16	I take IPTp-Sp whether or not I have malaria	3.12	.810	GE	3.03	.814	GE
17	I take IPTp-Sp in the first trimester	2.95	.796	GE	2.98	.831	GE
18	I receive the first dose of IPTp-Sp in the second trimester	2.96	.808	GE	3.00	.791	GE
19	I take IPT-Sp first dose in the third trimester of every pregnancy	2.93	.871	GE	2.92	.804	GE
20	I take IPTp-Sp immediately at the antenatal clinic under the Direct Observe Therapy (DOT)	3.02	.798	GE	3.01	.837	GE
21	I recommend the uptake of IPTp-Sp to my friends who are pregnant	3.05	.796	GE	2.97	.837	GE
22	I take IPTp-Sp with or without food	3.20	.749	GE	3.04	.809	GE
23	I receive IPTp-Sp till time of delivery	2.86	.749	GE	3.06	.799	GE
24	I receive at least 3 doses of IPTp-Sp in every pregnancy	3.02	.820	GE	2.99	.829	GE
25	I do not take IPTp-Sp if I am receiving co-trimaxazole (septrin)	2.91	.815	GE	3.01	.782	GE
26	I tolerate IPTp-Sp side effects	3.13	.788	GE	2.97	.799	GE
27	I receive at least 2 doses of IPTp-Sp every pregnancy	3.00	.714	GE	2.92	.819	GE
28	I do not use IPTp-Sp because it is not part of ANC services in my health facility	2.95	.796	GE	2.98	.805	GE
29	I do not take IPTp-Sp in the 1st trimester	2.84	.848	GE	2.95	.773	GE
30	I have no concern about IPTp-Sp safety from 2nd trimester	2.95	.796	GE	3.07	.805	GE
31	I receive at least 1 dose of IPTp-Sp in every pregnancy	2.79	.780	GE	3.01	.795	GE
32	I do not take prescribed IPTp-Sp in the health facility	2.95	.818	GE	3.07	.801	GE
33	I take 3 tablets of IPTp-Sp at once whenever I am taking it	2.95	.724	GE	3.01	.827	GE
34	I take my routine folic acid a dose daily together with SP without fear of drug reaction	3.14	.841	GE	3.04	.805	GE
35	I will continue to receive IPTp-SP from my health facility at every pregnancy until the usage is stopped	3.05	.818	GE	3.00	.788	GE

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36	I observe compliance of receiving my IPTp-SP with regular attendance to my scheduled antenatal visit	3.13	.854	GE	2.94	.780	GE
37	I buy prescribed IPTp-SP when out of stock in the health and bring back to the ANC for confirmation	2.88	.875	GE	3.05	.834	GE
38	I pay for malaria test whenever I present at ANC clinic with symptoms of malaria for them to know if I will take IPTp-SP for malaria prevention or malaria clinical management drugs	3.11	.846	GE	3.00	.810	GE
39	I receive IPTp-SP for malaria prevention whenever I tested negative	3.05	.862	GE	2.96	.820	GE
40	I do not receive IPTp-SP when I tested positive	3.05	.862	GE	2.95	.834	GE
41	I do not take unprescribed IPTp-SP doses at home	2.91	.851	GE	3.00	.793	GE
42	I do have mild and transient side effects of nausea, vomiting, weakness and dizziness with 1st dose of IPTp-SP	3.11	.802	GE	2.96	.796	GE
43	I noticed IPTp-SP side effect decreases with the administration of further doses	2.96	.762	GE	2.91	.818	GE
44	I cannot recommend the uptake of IPTp-SP to my friends who are pregnant	2.93	.828	GE	3.07	.826	GE
45	I do take IPTp-SP when receiving cotrimoxazole (septrin)	2.99	.824	GE	2.97	.791	GE
46	I do take IPTp-SP because I react to sulphur	2.93	.828	GE	3.03	.805	GE
47	I take prescribed IPTp-SP alternative that has no sulphur	3.09	.837	GE	2.97	.797	GE
48	I take IPTp-SP because I understand it prevents adverse effects of malaria on maternal and fetal outcomes	2.98	.798	GE	3.02	.852	GE
49	I discuss any side effect of IPTp-SP I observe with the ANC clinic nurse	3. 12	.764	GE	2.93	.811	GE
50	I feel IPTp-SP is cheap and effective	3.21	.825	GE	2.94	.829	GE
	Cluster Mean = 3.02	**STANDARD DEVIATION.83**					

Table 2 shows the summary of the extent to which level of education affects the utilization of IPTp among pregnant women in rural areas. The responses of the respondents showed that their cluster mean was 3.02 with a corresponding standard deviation of .83. This signifies that level of education affects the utilization of IPTp to a great extent among the pregnant women in rural areas of Enugu State.

Research Question 3: To what extent does employment status affect the utilization of IPTp among pregnant women in rural areas in Enugu State?

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Table 3: Extent to which employment status affects the utilization of IPTp among younger and older pregnant women in rural areas of Enugu State.

	ITEMS	Younger Pregnant Women (359)			Older Pregnant Women (132)		
s/n	**Employment status predicts the utilization of IPTp in the following ways:**	Ẍ	SD	Dec	Ẍ	SD	Dec
8	I book for antenatal care at a health facility whenever I am pregnant	2.98	.866	GE	3.03	.807	GE
9	I attend scheduled antenatal clinic regularly (upto 4 visits in each preg.)	3.00	.837	GE	3.10	.809	GE
10	I take any IPTp-Sp prescribed for me	2.95	.865	GE	3.08	.839	GE
11	I receive IPTp 2nd& order doses at every monthly interval	2.92	.862	GE	2.97	.822	GE
12	I receive IPTp-Sp 2nd& order doses at every week interval	3.16	.778	GE	3.01	.846	GE
13	I collect my own IPTp-Sp whenever available in my health facility	3.00	.856	GE	2.94	.837	GE
14	I follow every instruction on how and when to take IPTp-Sp	2.93	.834	GE	3.04	.822	GE
15	I take IPTp-Sp whenever I am not infected with malaria only	2.79	.733	GE	3.00	.835	GE
16	I take IPTp-Sp whether or not I have malaria	3.13	.806	GE	3.04	.822	GE
17	I take IPTp-Sp in the first trimester	2.95	.784	GE	2.88	.827	GE
18	I receive the first dose of IPTp-Sp in the second trimester	2.93	.793	GE	3.03	.827	GE
19	I take IPT-Sp first dose in the third trimester of every pregnancy	2.92	.881	GE	2.88	.787	GE
20	I take IPTp-Sp immediately at the antenatal clinic under the Direct Observe Therapy (DOT)	2.98	.806	GE	3.03	.838	GE
21	I recommend the uptake of IPTp-Sp to my friends who are pregnant	3.07	.772	GE	2.99	.846	GE
22	I take IPTp-Sp with or without food	3.20	.749	GE	3.02	.783	GE
23	I receive IPTp-Sp till time of delivery	2.87	.763	GE	3.06	.789	GE
24	I receive at least 3 doses of IPTp-Sp in every pregnancy	2.93	.834	GE	2.96	.830	GE
25	I do not take IPTp-Sp if I am receiving co-trimaxazole (septrin)	2.90	.790	GE	2.99	.791	GE
26	I tolerate IPTp-Sp side effects	3.11	.798	GE	2.93	.796	GE
27	I receive at least 2 doses of IPTp-Sp every pregnancy	2.98	.741	GE	2.96	.826	GE
28	I do not use IPTp-Sp because it is not part of ANC services in my health facility	3.02	.806	GE	2.90	.785	GE
29	I do not take IPTp-Sp in the 1st trimester	2.84	.840	GE	2.92	.775	GE
30	I have no concern about IPTp-Sp safety from 2nd trimester	3.00	.796	GE	2.98	.823	GE
31	I receive at least 1 dose of IPTp-Sp in every pregnancy	2.80	.771	GE	3.01	.770	GE
32	I do not take prescribed IPTp-Sp in the health facility	2.92	.822	GE	3.04	.790	GE
33	I take 3 tablets of IPTp-Sp at once whenever I am taking it	2.95	.717	GE	2.93	.812	GE
34	I take my routine folic acid a dose daily together with SP without fear of drug reaction	3.18	.827	GE	3.04	.806	GE
35	I will continue to receive IPTp-SP from my health facility at every pregnancy until the usage is stopped	3.07	.814	GE	2.92	.819	GE
36	I observe compliance of receiving my IPTp-SP with regular attendance to my scheduled antenatal visit	3.07	.854	GE	3.01	.811	GE
37	I buy prescribed IPTp-SP when out of stock in the health and bring back to the ANC for confirmation	2.87	.866	GE	3.05	.848	GE

38	I pay for malaria test whenever I present at ANC clinic with symptoms of malaria for them to know if I will take IPTp-SP for malaria prevention or malaria clinical management drugs	3.11	.839	GE	3.00	.811	GE
39	I receive IPTp-SP for malaria prevention whenever I tested negative	3.07	.873	GE	3.01	.842	GE
40	I do not receive IPTp-SP when I tested positive	3.08	.843	GE	3.00	.842	GE
41	I do not take unprescribed IPTp-SP doses at home	2.92	.822	GE	2.97	.778	GE
42	I do have mild and transient side effects of nausea, vomiting, weakness and dizziness with 1st dose of IPTp-SP	3.11	.798	GE	2.97	.790	GE
43	I noticed IPTp-SP side effect decreases with the administration of further doses	2.92	.781	GE	2.92	.842	GE
44	I cannot recommend the uptake of IPTp-SP to my friends who are pregnant	2.95	.825	GE	3.09	.845	GE
45	I do take IPTp-SP when receiving cotrimoxazole (septrin)	3.00	.816	GE	3.03	.790	GE
46	I do take IPTp-SP because I react to sulphur	2.92	.822	GE	3.06	.789	GE
47	I take prescribed IPTp-SP alternative that has no sulphur	3.11	.839	GE	2.94	.797	GE
48	I take IPTp-SP because I understand it prevents adverse effects of malaria on maternal and fetal outcomes	3.00	.796	GE	2.97	.853	GE
49	I discuss any side effect of IPTp-SP I observe with the ANC clinic nurse	3. 11	.755	GE	2.95	.818	GE
50	I feel IPTp-SP is cheap and effective	3.20	.813	GE	2.90	.828	GE
	Cluster Mean = 3.00 **STANDARD DEVIATION = .81**						

Table 3 shows the summary of the extent to which employment status affects the utilization of IPTp among pregnant women in rural areas. The responses of the respondents showed that their cluster mean was 3.00 with a corresponding standard deviation of .81. This signifies that employment status affects the utilization of IPTp to a great extent among the pregnant women in rural areas of Enugu State.

Research Question 4: To what extent does marital status affect the utilization of IPTp among pregnant women in rural areas in Enugu State?

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Table 4: Extent to which marital status affects the utilization of IPTp among younger and older pregnant women in rural areas of Enugu State.

	ITEMS	Younger Pregnant Women (359)			Older Pregnant Women (132)		
s/n	**Marital status predicts the utilization of IPTp in the following ways:**	Ẍ	SD	Dec	Ẍ	SD	Dec
8	I book for antenatal care at a health facility whenever I am pregnant	3.15	.868	GE	2.97	.867	GE
9	I attend scheduled antenatal clinic regularly (upto 4 visits in each preg.)	2.89	.823	GE	2.84	.778	GE
10	I take any IPTp-Sp prescribed for me	2.87	.859	GE	2.91	.802	GE
11	I receive IPTp 2nd& order doses at every monthly interval	2.98	.774	GE	2.93	.804	GE
12	I receive IPTp-Sp 2nd& order doses at every week interval	3.07	.800	GE	3.00	.807	GE
13	I collect my own IPTp-Sp whenever available in my health facility	2.70	.840	GE	2.90	.875	GE
14	I follow every instruction on how and when to take IPTp-Sp	2.80	.778	GE	2.89	.813	GE
15	I take IPTp-Sp whenever I am not infected with malaria only	2.96	.893	GE	2.87	.864	GE
16	I take IPTp-Sp whether or not I have malaria	3.02	.856	GE	3.01	.855	GE
17	I take IPTp-Sp in the first trimester	3.07	.827	GE	3.07	.859	GE
18	I receive the first dose of IPTp-Sp in the second trimester	2.96	.842	GE	3.01	.828	GE
19	I take IPT-Sp first dose in the third trimester of every pregnancy	3.01	.856	GE	2.98	.821	GE
20	I take IPTp-Sp immediately at the antenatal clinic under the Direct Observe Therapy (DOT)	2.59	.800	GE	3.01	.800	GE
21	I recommend the uptake of IPTp-Sp to my friends who are pregnant	2.77	.827	GE	3.03	.854	GE
22	I take IPTp-Sp with or without food	2.87	.806	GE	2.96	.847	GE
23	I receive IPTp-Sp till time of delivery	3.11	.875	GE	3.00	.821	GE
24	I receive at least 3 doses of IPTp-Sp in every pregnancy	2.66	.797	GE	3.11	.785	GE
25	I do not take IPTp-Sp if I am receiving co-trimaxazole (septrin)	2.96	.715	GE	3.04	.763	GE
26	I tolerate IPTp-Sp side effects	2.93	.827	GE	2.90	.849	GE
27	I receive at least 2 doses of IPTp-Sp every pregnancy	3.00	.789	GE	3.01	.814	GE
28	I do not use IPTp-Sp because it is not part of ANC services in my health facility	2.93	.827	GE	2.93	.832	GE
29	I do not take IPTp-Sp in the 1st trimester	3.00	.760	GE	2.92	.782	GE
30	I have no concern about IPTp-Sp safety from 2nd trimester	3.02	.745	GE	3.11	.741	GE
31	I receive at least 1 dose of IPTp-Sp in every pregnancy	3.13	.833	GE	2.99	.828	GE
32	I do not take prescribed IPTp-Sp in the health facility	3.15	.842	GE	3.14	.801	GE
33	I take 3 tablets of IPTp-Sp at once whenever I am taking it	2.76	.822	GE	2.83	.811	GE
34	I take my routine folic acid a dose daily together with SP without fear of drug reaction	2.93	.854	GE	3.03	.854	GE
35	I will continue to receive IPTp-SP from my health facility at every pregnancy until the usage is stopped	2.98	.774	GE	2.93	.832	GE
36	I observe compliance of receiving my IPTp-SP with regular attendance to my scheduled antenatal visit	2.98	.774	GE	3.04	.763	GE
37	I buy prescribed IPTp-SP when out of stock in the health and bring back to the ANC for confirmation	3.00	.843	GE	3.08	.824	GE
38	I pay for malaria test whenever I present at ANC clinic with	3.17	.851	GE	3.01	.814	GE

	symptoms of malaria for them to know if I will take IPTp-SP for malaria prevention or malaria clinical management drugs						
39	I receive IPTp-SP for malaria prevention whenever I tested negative	2.96	.868	GE	2.94	.839	GE
40	I do not receive IPTp-SP when I tested positive	2.83	.769	GE	2.81	.748	GE
41	I do not take unprescribed IPTp-SP doses at home	3.07	.827	GE	3.08	.796	GE
42	I do have mild and transient side effects of nausea, vomiting, weakness and dizziness with 1st dose of IPTp-SP	2.89	.795	GE	3.06	.853	GE
43	I noticed IPTp-SP side effect decreases with the administration of further doses	3.00	.869	GE	2.92	.877	GE
44	I cannot recommend the uptake of IPTp-SP to my friends who are pregnant	3.02	.830	GE	3.00	.861	GE
45	I do take IPTp-SP when receiving cotrimoxazole (septrin)	2.91	.725	GE	3.03	.785	GE
46	I do take IPTp-SP because I react to sulphur	2.98	.802	GE	3.07	.790	GE
47	I take prescribed IPTp-SP alternative that has no sulphur	3.13	.859	GE	3.03	.827	GE
48	I take IPTp-SP because I understand it prevents adverse effects of malaria on maternal and fetal outcomes	2.98	.856	GE	2.96	.833	GE
49	I discuss any side effect of IPTp-SP I observe with the ANC clinic nurse	2.93	.854	GE	2.94	.853	GE
50	I feel IPTp-SP is cheap and effective	3.09	.812	GE	2.94	.812	GE
	Cluster Mean = 3.03 **STANDARD DEVIATION = .82**						

Table 4 shows the summary of the extent to which marital status affects the utilization of IPTp among pregnant women in rural areas. The responses of the respondents showed that their cluster mean was 3.03 with a corresponding standard deviation of .82. This is an indication that marital status affects the utilization of IPTp to a great extent among the pregnant women in rural areas of Enugu State.

Research Question 5: To what extent does scheduled antenatal visit affect the utilization of IPTp among younger and older pregnant women in rural areas in Enugu State?

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Table 5: Extent to which scheduled antenatal visits affect utilization of IPTp among younger and older pregnant women in rural areas of Enugu State.

	ITEMS	Younger Pregnant Women (359)			Older Pregnant Women (132)		
s/n	**Scheduled antenatal visits predicts the utilization of IPTp in the following ways:**	Ẍ	SD	Dec	Ẍ	SD	Dec
8	I book for antenatal care at a health facility whenever I am pregnant	3.05	.808	GE	2.90	.817	GE
9	I attend scheduled antenatal clinic regularly (upto 4 visits in each preg.)	3.04	.811	GE	2.90	.848	GE
10	I take any IPTp-Sp prescribed for me	2.98	.798	GE	3.08	.798	GE
11	I receive IPTp 2nd& order doses at every monthly interval	3.02	.806	GE	2.91	.802	GE
12	I receive IPTp-Sp 2nd& order doses at every week interval	2.93	.811	GE	3.08	.829	GE
13	I collect my own IPTp-Sp whenever available in my health facility	2.94	.826	GE	2.97	.838	GE
14	I follow every instruction on how and when to take IPTp-Sp	3.01	.769	GE	3.02	.813	GE
15	I take IPTp-Sp whenever I am not infected with malaria only	3.07	.803	GE	3.03	.843	GE
16	I take IPTp-Sp whether or not I have malaria	3.06	.766	GE	2.93	.789	GE
17	I take IPTp-Sp in the first trimester	3.09	.807	GE	3.10	.785	GE
18	I receive the first dose of IPTp-Sp in the second trimester	3.00	.812	GE	2.95	.790	GE
19	I take IPT-Sp first dose in the third trimester of every pregnancy	3.14	.826	GE	2.90	.817	GE
20	I take IPTp-Sp immediately at the antenatal clinic under the Direct Observe Therapy (DOT)	2.93	.803	GE	3.11	.813	GE
21	I recommend the uptake of IPTp-Sp to my friends who are pregnant	2.97	.797	GE	2.92	.844	GE
22	I take IPTp-Sp with or without food	2.99	.805	GE	2.96	.833	GE
23	I receive IPTp-Sp till time of delivery	2.98	.791	GE	3.01	.824	GE
24	I receive at least 3 doses of IPTp-Sp in every pregnancy	2.92	.811	GE	3.02	.741	GE
25	I do not take IPTp-Sp if I am receiving co-trimaxazole (septrin)	3.07	.828	GE	2.99	.833	GE
26	I tolerate IPTp-Sp side effects	2.99	.824	GE	2.98	.815	GE
27	I receive at least 2 doses of IPTp-Sp every pregnancy	3.01	.805	GE	2.96	.823	GE
28	I do not use IPTp-Sp because it is not part of ANC services in my health facility	3.00	.800	GE	3.11	.813	GE
29	I do not take IPTp-Sp in the 1st trimester	2.99	.839	GE	2.92	.844	GE
30	I have no concern about IPTp-Sp safety from 2nd trimester	2.94	.808	GE	2.96	.833	GE
31	I receive at least 1 dose of IPTp-Sp in every pregnancy	2.99	.805	GE	3.01	.824	GE
32	I do not take prescribed IPTp-Sp in the health facility	2.98	.791	GE	3.20	.749	GE
33	I take 3 tablets of IPTp-Sp at once whenever I am taking it	2.92	.811	GE	2.86	.749	GE
34	I take my routine folic acid a dose daily together with SP without fear of drug reaction	3.07	.828	GE	3.02	.820	GE
35	I will continue to receive IPTp-SP from my health facility at every pregnancy until the usage is stopped	2.99	.824	GE	2.91	.815	GE
36	I observe compliance of receiving my IPTp-SP with regular attendance to my scheduled antenatal visit	3.01	.805	GE	3.13	.788	GE

37	I buy prescribed IPTp-SP when out of stock in the health and bring back to the ANC for confirmation	3.00	.800	GE	3.00	.714	GE
38	I pay for malaria test whenever I present at ANC clinic with symptoms of malaria for them to know if I will take IPTp-SP for malaria prevention or malaria clinical management drugs	3.04	.819	GE	2.95	.796	GE
39	I receive IPTp-SP for malaria prevention whenever I tested negative	2.98	.829	GE	2.84	.848	GE
40	I do not receive IPTp-SP when I tested positive	3.01	.829	GE	3.20	.749	GE
41	I do not take unprescribed IPTp-SP doses at home	2.98	.815	GE	2.86	.749	GE
42	I do have mild and transient side effects of nausea, vomiting, weakness and dizziness with 1st dose of IPTp-SP	2.96	.823	GE	3.04	.842	GE
43	I noticed IPTp-SP side effect decreases with the administration of further doses	2.78	.755	GE	3.05	.804	GE
44	I cannot recommend the uptake of IPTp-SP to my friends who are pregnant	3.08	.801	GE	3.02	.829	GE
45	I do take IPTp-SP when receiving cotrimoxazole (septrin)	3.04	.842	GE	2.95	.828	GE
46	I do take IPTp-SP because I react to sulphur	2.92	.847	GE	3.05	.804	GE
47	I take prescribed IPTp-SP alternative that has no sulphur	2.94	.827	GE	3.02	.829	GE
48	I take IPTp-SP because I understand it prevents adverse effects of malaria on maternal and fetal outcomes	2.98	.815	GE	2.95	.828	GE
49	I discuss any side effect of IPTp-SP I observe with the ANC clinic nurse	2.96	.823	GE	3.05	.804	GE
50	I feel IPTp-SP is cheap and effective	2.97	.828	GE	2.98	.829	GE
	Cluster Mean = 2.91	**STANDARD DEVIATION = .80**					

Table 5 shows the summary of the extent to which scheduled antenatal visit affects the utilization of IPTp among pregnant women in rural areas. The responses of the respondents showed that their cluster mean was 2.91 with a corresponding standard deviation of .80. This is an indication that scheduled antenatal visit affects the utilization of IPTp to a great extent among the pregnant women in rural areas of Enugu State.

Research Question 6: To what extent does gestational age of pregnancy at booking affect the utilization of IPTp among pregnant women in rural areas in Enugu State?

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Table 6: Extent to which gestational age of pregnancy at booking affects the utilization of IPTp among younger and older pregnant women in rural areas of Enugu State.

	ITEMS	Younger Pregnant Women (359)			Older Pregnant Women (132)		
s/n	**Gestational age of pregnancy at booking predicts the utilization of IPTp in the following ways:**	Ẍ	SD	Dec	Ẍ	SD	Dec
8	I book for antenatal care at a health facility whenever I am pregnant	2.92	.844	GE	2.98	.774	GE
9	I attend scheduled antenatal clinic regularly (upto 4 visits in each preg.)	2.96	.833	GE	2.98	.774	GE
10	I take any IPTp-Sp prescribed for me	3.01	.824	GE	3.00	.843	GE
11	I receive IPTp 2nd& order doses at every monthly interval	3.02	.741	GE	3.17	.851	GE
12	I receive IPTp-Sp 2nd& order doses at every week interval	2.99	.833	GE	2.96	.868	GE
13	I collect my own IPTp-Sp whenever available in my health facility	2.98	.815	GE	2.83	.769	GE
14	I follow every instruction on how and when to take IPTp-Sp	2.96	.823	GE	3.07b	.827	GE
15	I take IPTp-Sp whenever I am not infected with malaria only	2.78	.755	GE	2.89	.795	GE
16	I take IPTp-Sp whether or not I have malaria	3.08	.801	GE	3.00	.869	GE
17	I take IPTp-Sp in the first trimester	2.92	.844	GE	2.98	.774	GE
18	I receive the first dose of IPTp-Sp in the second trimester	2.96	.833	GE	2.98	.774	GE
19	I take IPT-Sp first dose in the third trimester of every pregnancy	3.01	.824	GE	3.00	.843	GE
20	I take IPTp-Sp immediately at the antenatal clinic under the Direct Observe Therapy (DOT)	3.02	.741	GE	3.17	.851	GE
21	I recommend the uptake of IPTp-Sp to my friends who are pregnant	2.99	.833	GE	2.96	.868	GE
22	I take IPTp-Sp with or without food	2.98	.815	GE	2.83	.769	GE
23	I receive IPTp-Sp till time of delivery	2.96	.823	GE	3.07	.827	GE
24	I receive at least 3 doses of IPTp-Sp in every pregnancy	2.78	.765	GE	2.89	.795	GE
25	I do not take IPTp-Sp if I am receiving co-trimaxazole (septrin)	3.08	.801	GE	3.00	.869	GE
26	I tolerate IPTp-Sp side effects	2.92	.844	GE	2.98	.744	GE
27	I receive at least 2 doses of IPTp-Sp every pregnancy	2.96	.833	GE	2.98	.774	GE
28	I do not use IPTp-Sp because it is not part of ANC services in my health facility	3.07	.828	GE	2.98	.829	GE
29	I do not take IPTp-Sp in the 1st trimester	2.99	.824	GE	2.91	.786	GE
30	I have no concern about IPTp-Sp safety from 2nd trimester	3.01	.805	GE	3.11	.768	GE
31	I receive at least 1 dose of IPTp-Sp in every pregnancy	3.00	.800	GE	2.99	.846	GE
32	I do not take prescribed IPTp-Sp in the health facility	2.99	.839	GE	3.02	.783	GE
33	I take 3 tablets of IPTp-Sp at once whenever I am taking it	2.94	.808	GE	3.06	.789	GE
34	I take my routine folic acid a dose daily together with SP without fear of drug reaction	2.97	.828	GE	2.96	.830	GE
35	I will continue to receive IPTp-SP from my health facility at every pregnancy until the usage is stopped	3.07	.828	GE	2.99	.791	GE

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36	I observe compliance of receiving my IPTp-SP with regular attendance to my scheduled antenatal visit	2.99	.824	GE	2.93	.796	GE
37	I buy prescribed IPTp-SP when out of stock in the health and bring back to the ANC for confirmation	3.01	.805	GE	2.96	.826	GE
38	I pay for malaria test whenever I present at ANC clinic with symptoms of malaria for them to know if I will take IPTp-SP for malaria prevention or malaria clinical management drugs	3.00	.800	GE	2.90	.785	GE
39	I receive IPTp-SP for malaria prevention whenever I tested negative	2.99	.839	GE	2.92	.775	GE
40	I do not receive IPTp-SP when I tested positive	3.01	.829	GE	2.98	.823	GE
41	I do not take unprescribed IPTp-SP doses at home	2.99	.805	GE	3.01	.770	GE
42	I do have mild and transient side effects of nausea, vomiting, weakness and dizziness with 1st dose of IPTp-SP	2.98	.791	GE	3.04	.790	GE
43	I noticed IPTp-SP side effect decreases with the administration of further doses	2.92	.811	GE	2.93	.812	GE
44	I cannot recommend the uptake of IPTp-SP to my friends who are pregnant	2.92	.820	GE	3.04	.806	GE
45	I do take IPTp-SP when receiving cotrimoxazole (septrin)	2.96	.868	GE	2.92	.819	GE
46	I do take IPTp-SP because I react to sulphur	2.98	.856	GE	3.01	.811	GE
47	I take prescribed IPTp-SP alternative that has no sulphur	3.05	.832	GE	2.99	.846	GE
48	I take IPTp-SP because I understand it prevents adverse effects of malaria on maternal and fetal outcomes	2.92	.820	GE	3.02	.783	GE
49	I discuss any side effect of IPTp-SP I observe with the ANC clinic nurse	2.96	.868	GE	3.06	.789	GE
50	I feel IPTp-SP is cheap and effective	2.98	.856	GE	2.96	.830	GE
	Cluster Mean = 2.95 STANDARD DEVIATION = .83						

Table 6 shows the summary of the extent to which scheduled gestational age at booking affects the utilization of IPTp among pregnant women in rural areas. The responses of the respondents showed that their cluster mean was 2.95 with a corresponding standard deviation of .83. This is an indication that gestational age at booking affects the utilization of IPTp to a great extent among the pregnant women in rural areas of Enugu State.

Hypotheses

Ho_1: There is no significant difference between the mean ratings of younger and older pregnant women in rural areas of Enugu State on the utilization of IPTp based on parity.

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Table 7: Summary of z-test analysis on the mean ratings of younger and older pregnant women in rural areas of Enugu State on the utilization of IPTp based on parity

Group	n	$\bar{x}$	SD	Df	Level of Sig	P-value	Decision
Younger Pregnant women	359	2.82	.82	489	.05	.036	Ho not significant
Older Pregnant women	132	2.78	.81				

Data in Table 7 for younger and older pregnant women in rural areas show that at 489 degree of freedom, the p-value was.036 at.05 level of significance. This shows that there is no significant difference in the mean ratings of younger and older pregnant women in rural areas of Enugu State on the utilization of IPTp based on parity

Ho_2: There is no significant difference between the mean ratings of younger and older pregnant women in rural areas of Enugu State on the utilization of IPTp based on level of education.

Table 8: Summary of z-test analysis on the mean ratings of younger and older pregnant women in rural areas of Enugu State on the utilization of IPTp based on level of education

Group	N	$\bar{x}$	SD	df	Level of Sig	P-value	Decision
Younger Pregnant women	359	3.03	.80	489	.05	.011	Ho not significant
Older Pregnant women	132	3.01	.83				

Data in Table 8 for younger and older pregnant women in rural areas show that at 489 degree of freedom, the p-value was.011 at.05 level of significance. This shows that there is no significant difference in the mean ratings of younger and older pregnant women in rural areas of Enugu State on the utilization of IPTp based on level of education.

Ho_3: There is no significant difference between the mean ratings of younger and older pregnant women in rural areas of Enugu State on the utilization of IPTp based on employment status.

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Table 9: Summary of z-test analysis on the mean ratings of younger and older pregnant women in rural areas of Enugu State on the utilization of IPTp based on employment status

Group		n	$\bar{x}$	SD	df	Level of Sig	P-value	Decision
Younger women	Pregnant	359	3.00	.81				
					489	.05	.024	Ho not significant
Older women	Pregnant	132	3.00	.80				

Data in Table 9 for younger and older pregnant women in rural areas show that at 489 degree of freedom, the p-value was.024 at.05 level of significance. This shows that there is no significant difference in the mean ratings of younger and older pregnant women in rural areas of Enugu State on the utilization of IPTp based on employment status.

Ho_4: There is no significant difference between the mean ratings of younger and older pregnant women in rural areas of Enugu State on the utilization of IPTp based on marital status.

Table 10: Summary of z-test analysis on the mean ratings of younger and older pregnant women in rural areas of Enugu State on the utilization of IPTp based on marital status

Group		n	$\bar{x}$	SD	df	Level of Sig	P-value	Decision
Younger women	Pregnant	359	3.03	.83				
					489	.05	.029	Ho not significant
Older women	Pregnant	132	3.02	.81				

Data in Table 10 for younger and older pregnant women in rural areas show that at 489 degree of freedom, the p-value was.029 at.05 level of significance. This shows that there is no significant difference in the mean ratings of younger and older pregnant women in rural areas of Enugu State on the utilization of IPTp based on marital status.

Ho_5: There is no significant difference between the mean ratings of younger and older pregnant women in rural areas of Enugu State on the utilization of IPTp based on scheduled antenatal visits.

Table 11: Summary of z-test analysis on the mean ratings of younger and older pregnant women in rural areas of Enugu State on the utilization of IPTp based on scheduled antenatal visits

Group		n	$\bar{x}$	SD	df	Level of Sig	P-value	Decision
Younger women	Pregnant	359	2.93	.80	489	.05	.041	Ho not significant
Older women	Pregnant	132	2.90	.81				

Data in Table 11 for younger and older pregnant women in rural areas show that at 489 degree of freedom, the p-value was .041 at .05 level of significance. This shows that there is no significant difference in the mean ratings of younger and older pregnant women in rural areas of Enugu State on the utilization of IPTp based on scheduled antenatal visits.

Ho_6: There is no significant difference between the mean ratings of younger and older pregnant women in rural areas of Enugu State on the utilization of IPTp based on gestational age of pregnancy at booking.

Table 12: Summary of z-test analysis on the mean ratings of younger and older pregnant women in rural areas of Enugu State in the utilization of IPTp based on gestational age of pregnancy at booking

Group		n	$\bar{x}$	SD	df	Level of Sig	P-value	Decision
Younger women	Pregnant	359	2.97	.81	489	.05	.019	Ho not significant
Older women	Pregnant	132	2.93	.83				

Data in Table 12 for younger and older pregnant women in rural areas show that at 489 degree of freedom, the p-value was.019 at.05 level of significance. This shows that there is no significant difference in the mean ratings of younger and older pregnant women in rural areas of Enugu State on the utilization of IPTp based on gestational age of pregnancy at booking.

Discussions

Extent to which parity affects the utilization of IPTp among pregnant women in rural areas: The finding of the study revealed that parity affects the utilization of IPTp among pregnant women in rural areas of Enugu State to a great extent. The finding of the study is in line with Nkunzimana and Babale (2020) who posited that parity is one of the major factors for IPTp–SP utilization. The finding is also in accordance with Sadeghi in Amos (2019) who maintained that high parity is considered to be one of the most important factors leading to the utilization of IPTp among rural women. Furthermore, the finding of the study is also in

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agreement with Amos, Komlan, Ghose and Sanni (2019) whose study revealed that having higher parity was associated with lower odds of taking IPTp-SP. The finding is also in line with Tackie, Seidu and Osie (2020), who posited that parity was statistically associated with the uptake of IPTp-SP.

Further finding showed that there is no significant difference between the mean ratings of younger and older pregnant women in rural areas of Enugu State on the utilization of IPTp based on parity. The finding is in agreement with Adeola and Okwilagwe (2015) who stated posited that the number of pregnancies significantly and consistently influenced acceptance and utilization of these tools. The finding of the study is in disagreement with Aneke (2015) who posited that there was no significant association between parity and use of ITNs and parity and uptake of intermittent preventive treatment in pregnancy (IPTp).

Extent to which level of education affects the utilization of IPTp among pregnant women in rural areas: The findings of the study revealed that level of education affects the utilization of IPTp among pregnant women in rural areas of Enugu State to a great extent. Also, there is no significant difference between the mean ratings of younger and older pregnant women in rural areas of Enugu State on the utilization of IPTp based on level of education. The findings of the study are in line with Addai in Otigi (2015) who posited that the use of IPTp is shaped mostly by the level of maternal education. The findings are also in line with Balami, Said and Zulkefli (2016), who stated that among pregnant women in Bangui, Central Africa, those with at least a secondary school education were twice more likely to be compliant with IPTp. The findings of the study are in line with Nkunzimana and Babale (2020), who established that educational level is one of the major factors for IPTp–SP utilization. Furthermore, in a study conducted by Tackie, Seidu and Osie (2020), the findings revealed that educational level was statistically associated with the uptake of IPTp-SP. The findings of the study are also in line with Adeola and Okwilagwe (2015), who stated that educational qualification of the pregnant women significantly and consistently influenced acceptance and utilization of these tools. The finding is in accordance with Otigi (2015), who stated that the higher a woman's level of education, the more likely will she utilize maternal care services like IPT. Women with higher education were less likely to use IPTp compared to women with no education. A possible explanation could be that women with higher education may be in a better position financially and may afford a healthier lifestyle and living standards, which may make IPTp use apparently less crucial.

Extent to which employment status affects the utilization of IPTp among pregnant women in rural areas: The findings of the study revealed that employment status affects the utilization of IPTp among pregnant women in rural areas in Enugu State to a great extent. Further finding revealed that no significant difference exists between the mean ratings of younger and older pregnant women in rural areas of Enugu State on the utilization of IPTp based on employment status. The findings of the study are in accordance with Addai in Otigi (2015) who posited that the use of IPTp is shaped mostly by occupation of pregnant woman. The finding is also in accordance with Bello (2019) who stated that the nature or type of work a woman does influences her choice and access to healthcare like the utilization of IPTp. The findings of the

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study are also in accordance with Tackie, Seidu and Osie (2020), who revealed that employment status of pregnant women was statistically associated with the uptake of IPTp-SP. According to Adewole, Fawole, Ajayi, Yusuf, Oladimeji, Waziri, Nguku and Ajumobi (2019), being employed was one of the factors associated with IPTp-SP utilization. Yaya, Uthman, Amouzou and Bishwajit (2018) also stated employed stated predicts the utilization of IPTp to a great extent because those in the poorest, poorer, middle, and richer households had significantly higher odds of not taking at least three doses of IPTp-SP during their last pregnancy.
The finding of the study is in disagreement with Kamal (2012), who stated that non-working women are more likely to use some services than women who earn money through working.

Extent to which marital status affects the utilization of IPTp among pregnant women in rural areas: The finding of the study revealed that marital status affects the utilization of IPTp among pregnant women in rural areas to a great extent. The finding is in line with Schaeffer (2015) who mentioned that poor marital adjustment, dissatisfaction with social support networks, and low family cohesion predicted the non-utilization of health facilities. The finding is also in line with Tackie, Seidu and Osie (2020), who posited that marital status was statistically associated with the uptake of IPTp-SP. The finding is also in line with Adeola and Okwilagwe (2015), who stated that marital status significantly and consistently influenced acceptance and utilization of IPTp.

Further finding showed that there is no significant difference between the mean ratings of younger and older pregnant women in rural areas of Enugu State on the utilization of IPTp based on marital status. The finding is in line with Alafaka (2016), who stated that marital status was significantly associated with the utilization of IPTp.

Extent to which scheduled antenatal visits predicts the utilization of IPTp among pregnant women in rural areas: The findings of the study revealed that scheduled antenatal visits predict the utilization of IPTp among pregnant women in rural areas to a great extent. Also, there is no significant difference between the mean ratings of younger and older pregnant women in rural areas of Enugu State on the utilization of IPTp based on scheduled antenatal visits. The finding is in line with Esu, Effa, Udoh, Oduwole, Odey, Chibuzor, Oyo-Ita and Meremikwu (2013) who stated that efforts at ensuring early ANC booking and regular visits may be a potential means of increasing IPTp utilization in health care facilities. The finding is also in accordance with Amos, Komlan, Ghose and Sanni, (2019), who stated that antenatal care (ANC) visits are significant factors of IPTp-SP uptake. The finding is also in line with Odjidja and Duric (2017) who stated that number of ANC visits was associated with optimal uptake of IPTp. More so, majority of women who received a minimum of two doses of SP do attend four or more ANC visits (WHO, 2017).The finding is in line with Alafaka (2016)who stated that ANC visit is one of the factors affecting IPTp uptake. Antenatal care is essential in use of IPTp- SP during pregnancy. The number of recommended antenatal care visits by WHO has increased from at least four visits for low risk pregnancy to eight visits during the entire pregnancy. Non-attendance at antenatal care is a contributor to the gap in IPTp-SP use.

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Extent to which gestational age at booking affects the utilization of IPTp among pregnant women in rural areas: The findings of the study revealed that gestational age at booking affects the utilization of IPTp among pregnant women in rural areas in Enugu State. Further finding showed that there is no significant difference between the mean ratings of younger and older pregnant women in rural areas of Enugu State on the utilization of IPTp based on gestational age of pregnancy at booking. The findings of the study are in line with Nkunzimana and Babale (2020) who established that gestational age at the first ANC visit is one of the major factors for IPTp–SP utilization. The findings are also in line with Atasige, Wurapa, Afari, Sackey, Malm and Nyarko (2016), who stated that late first ANC visits are significantly associated with taking inadequate SP dose. However, the findings of the study differ with Amoran, Adebayo and Iyaniwura (2012), who revealed that early booking age is not statistically significantly associated with IPTp utilization

Conclusion

From the findings, factors like parity, level of education, employment status, marital status, scheduled antenatal visits and gestational age at booking affect the utilization of intermittent preventive treatment of malaria among pregnant women in rural areas in Enugu State. Also the hypothesis tested showed that there is no significant difference between the mean ratings of younger and older pregnant women in rural areas of Enugu State on the utilization of IPTp based on parity, level of education, employment status, marital status, scheduled antenatal visits and gestational age of pregnancy at booking.

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