

Prevalence of Malaria and Associated Factors among Pregnant Women Attending Antenatal Care at Public Health Facilities in Gurage Zone, Ethiopia

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Abstract

Introduction: During pregnancy, malaria causes life threatening outcomes to the mother, the fetus, and the new-born. In Sub-Saharan African countries, including Ethiopia, malaria in pregnancy is a major public health threat which results in significant morbidities and mortalities among pregnant women and their fetuses. Therefore, the aim of this study is to assess the magnitude of malaria and associated factors among pregnant women attending antenatal care at public health facilities in Gurage Zone, Ethiopia, to generate information that will help in malaria prevention, control, and treatment particularly among pregnant women.

Method: A facility-based cross-sectional study was conducted from March to May 2023 in Gurage Zone, Northwest Ethiopia. A multi-stage sampling technique was used to select 422 pregnant women from public health facilities. Pregnant women of all gravidities and gestations was interviewed from February to March 2023 using simple random sampling method with structured questionnaires to obtain socio-demographic, obstetric, clinical and knowledge profiles through face-to-face interview and malaria diagnosis confirmation is done on microscope-based laboratory techniques, (standard diagnostics, inc., Ethiopia).

Pregnant women who test positive for malaria was treated for malaria with artemisinin combination therapies (ACTs) as per national guidelines. The collected data was analyzed using Statistical Package for the Social Sciences (SPSS) version 25. Logistic regression uses to assess factors associated with malaria. Adjusted odds ratio with 95% confidence interval is calculated and P-value < 0.05 is considered statistically significant. The level of statistical significance is declared at a p-value less than or equal to 0.05.

Result: Overall, 422 pregnant women comprising out of those 328(77.7%) rural and 94(22.2%) urban dwellers participated in the study. The overall magnitude of malaria was 91(21.6%). The odds of malaria infection were 1.61 times higher among pregnant women who did not utilize ITN compared to their counterparts (AOR = 1.61, 95% CI: 0.76, 3.38).

Conclusion and recommendation: The think about found that the in general greatness of malaria sickness among pregnant ladies within the ponder region was found to be tall (21.6%).

Area health offices ought to give broad-scale health instruction and mindfulness building ventures to the pregnant ladies communities with respect to cleaning their environment and expelling stagnant water pools as to anticipate mosquito plenitude and thus diminish jungle fever frequency.

Keywords: Malaria; Pregnant women; Gurage; Ethiopia

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Introduction

Background

In 2021, there were approximately 247 million malaria cases and an estimated 619,000 malaria deaths globally [1]. About 96% of these deaths were from Africa. Mortality is concentrated around several high-risk groups, including pregnant women and infants. Malaria is a disease caused by the protozoan parasite of the genus *Plasmodium* with *P. falciparum*, *P. vivax*, *P. ovale*, *P. malaria* as the causative species [2]. In addition, *P. knowlesi*, a type of malaria that naturally infects macaques in Southeast Asia, also infects humans, causing malaria that is transmitted from animal to human ("zoonotic" malaria). *Plasmodium falciparum* and *P. vivax* malaria pose the greatest public health challenge. *P. falciparum* is most prevalent in Africa and is responsible for most deaths from malaria. This is predominantly due to its ability to sequester in the microvasculature, with these occlusions playing a role in the development of severe malaria [3].

Malaria during pregnancy is a serious public health problem in sub-Saharan Africa. It is estimated that each year approximately 25 million pregnant women in sub-Saharan Africa live at risk of *P. falciparum* malaria infection [3]. Two institution-based studies done among pregnant women attending antenatal care (ANC) in Nigeria showed the prevalence of malaria to be 41.6% [4] and 7.7% [5]. Another institution-based study in Eastern Sudan showed 13.7% of pregnant women were infected with *P. falciparum* [6]. Studies conducted in Burkina Faso [7] and Malawi [8] also showed the prevalence to be 18.1%, and 19% respectively.

Besides, two institutions and one community-based study conducted in different parts of Ethiopia also showed the prevalence of malaria among pregnant women to be between 2.83 and 16.3% [9-11]. Malaria infection during pregnancy causes an enormous risk to the mother, fetus, and neonates [12]. Different risk factors for malaria among pregnant women were identified by previous studies. These include educational status [7,13] age [5,14], ANC visit, gestational age [15], parity [7,14], gravidity, and ITN utilization [11].

Prevalence among pregnant women remains poorly considered. Therefore, there is scarcity of data on magnitude and associated factors of malaria among pregnant women [1-5,14]. In addition, Ethiopia has set goals for malaria elimination through conducting confirmatory testing for 100% of suspected malaria cases; treating as per the guideline; creating awareness by implementing strong SBCC services: early diagnosis and treatment packages with strong surveillance systems and effective vector control [9].

Statement of the problem

Malaria remains a major public health problem for the world population. Mainly developing African countries, especially those sub-Saharan are seriously affected by this disease. In 2020, in 33 moderate and high transmission countries in the WHO African Region, there were an estimated 33.8 million pregnancies, of which 11.6 million (34%) were exposed to malaria infection during

pregnancy [1]. It is also one of the major public health problems in Ethiopia of which about 75% of the total landmass of the country is considered as malarious and around 52% of the population living in these areas. In the past two decades, massive scale-up of anti-malaria interventions resulted in dramatic reductions of deaths and cases due to malaria. Motivated by the gains made, the Federal Ministry of Health Ethiopia (FMoH) with its partners launched a subnational elimination in 2017, which is now scaled-up at the national level. Therefore, controlling malaria during pregnancy is a key element of malaria programs. Strategies including preventive measures such as Insecticide Treated Nets (ITN) and, early diagnosis and appropriate treatment of malaria in pregnant mothers are paramount [5-7,9-11]. However, more work needs to be done because uptake of these malaria services in ANC settings has been low and even no well-organized documents concerning malaria and associated factors at health facilities [4,15]. There are still substantial gaps in the assessment of malaria for pregnant mothers in Ethiopia [8,13]. This limited service is due to many factors, with the main barriers being: (i) poor access to health services and malaria control measures, particularly in rural and remote areas; (ii) inadequate human resources and poor equipment;

(iii) low antenatal care attendance; and (iv) lack of collaboration and integration between reproductive and maternal health services and malaria program [1,9-11].

Similarly, there is a lack of data to support the use of malaria medicines in the youngest of infants. Another key issue is that many women in their first trimester of pregnancy may be unaware that they are pregnant, placing them at even greater risk and effectively broadening the high-risk category to include all sexually active women of reproductive potential [9-11,16,17]. Therefore, understanding the malaria prevalence and the intervention coverage and use could help planning and implementing appropriate intervention. Moreover, pregnant women are serving as the main reservoir for malaria and are feeling malaria transmission to the susceptible population. Therefore, giving attention to pregnant women is the priority for the successful control and elimination of malaria. Moreover, the existing scarce resources are distributing without considering the burden of malaria in space and time. Moreover, no study has been conducted to address the prevalence and associated factors of malaria among pregnant women in this area. Therefore, this study is designed to assess malaria and the factors associated with its infection among pregnant women in the Gurage zone of Ethiopia.

Significance of the study

This study is significant for pregnant mothers and the community as it aids in malaria prevention and control, and early diagnosing and treating during pregnancy. In addition, it helps the government to understand the prevalence of malaria in pregnant mothers and its distribution in the area, and hence, may provide evidence to design intervention tools. At most it uses as reference for researchers to fill unreached areas in this research and gap filling.

Objectives of the study

General objective

To determining the prevalence of Malaria and associated factors among pregnant women attending antenatal care at public health facilities in Gurage Zone, Ethiopia.

Specific objectives

1. To assess the magnitude of malaria among pregnant women in Gurage Zone.
2. To identify factors associated with prevalence of malaria

Methods and Materials

Study design, period and area

The study was conducted at Gurage Zone, which is one of the Zones in the SNNP Region of Ethiopia. The Zone lies in tropical climatic zone with latitude of 10.5° or 10° 30' north 2,135 meters ASL, an average annual temperature of 29.7°C and rainfall of 1315.9 mm. In this district, there are 10 Weredas, of these 2 weredas' populations are at risk of malaria. In 2021/2022, the annual malaria incidence rate in the district was 40.6 cases per 1000 population.

Population

Source population: Source population is all women of reproductive age in Gurage Zone, Ethiopia.

Study population: The study population comprises pregnant women from the first trimester and above who attend antenatal clinic at the Gurage Zone public health facilities. All pregnant women attending the antenatal clinic at the public health facilities within the study period and consent was enrolled in the study.

Inclusion and Exclusion Criteria

A pregnant woman in presenting to the public health facilities was enrolled in the study. Informed written or oral consent was obtained from participating women based on the level of literacy.

Exclusion criteria

Pregnant women who don't consent to the study are excluded from the study.

Variables

Dependent Variables: Presence or absence of malaria.

Independent Variables: The independent variables include socio-demographic factors (age, marital status, educational status, and occupational status); obstetric factors (gravidity, parity, trimester of pregnancy, history of abortion); malaria prevention measures (ITN utilization, IRS use,); health service use (accessibility of ANC, gestational age at the first visit, number of ANC visit, place of delivery for the previous child, previous history of malaria infection during pregnancy, and health education about malaria prevention methods during ANC follow up.

Operational definitions

Pregnant: a woman confirmed of having a growing fetus inside

the uterus as confirmed by a positive urine Human Chorionic Gonadotropin (HCG) test in a laboratory using a standard test kits and procedures.

Confirmed malaria: malaria cases in which the parasite has been detected using a diagnostic test i.e., microscopy in health facilities.

Malaria prevalence: The number of pregnant women who test positive by use of microscopy following malaria infection.

Distance is estimated as

Far = Distance from health facility to pregnant women's home/residence covering 2 hours or more on foot.

Medium = Distance from health centers to pregnant women's home covering 1–2 hrs. On foot

Near = Distance from health centers to pregnant women, s home cover less than 1 hour on foot

Blood sample collection-For detection and identification of Plasmodium species, capillary blood is collected by trained and experienced medical laboratory technicians

Data quality control-Before starting data collection, orientations is given to data collectors (Midwives and Medical Laboratory Technicians) by principal investigator on how to collect data.

Sample size determination

Number of pregnant mothers that was included in the study was determined using single population proportion formula. The assumption in the calculation of the sample size is confidence interval (CI) 95%; P = estimated prevalence of malaria (P=50% since there is no similar study in the pregnant women of malaria in similar area setting) and d = level of accuracy (margin of error) which is set at 5%. Accordingly, the final sample size for the study is 1,534.

$$[(za)^2 * (1 - p)]$$

$$n = \frac{2}{d^2}$$

d2

- Where, n = sample size
- p = 50% [16]
- d = assumed marginal error (5%) or precession
- Za/2= 1.96(95%)
- n= 384

By considering 10%, non-response rate, the total sample size was 422 for the study

Sampling procedure

The sample size was determined using a single proportion formula using a 50.0% prevalence of malaria among pregnant women, 95% confidence level, 5% margin of error, and design effect. To compensate for the non-response rate, 10% of the determined sample size was added. Finally, finite population correction will do to adjust the final sample size which will give total sample size

of 422. A multi-stage sampling technique will use to select the determined sample size.

Data collection procedure

Structure Interview Questionnaires: The study subjects were interviewed using a pre-tested and structured interviewer-administered questionnaire, which is developed in both English and Amharic language, and which is pre-tested on 5% of the sample. The questionnaire contents include socio-demographic factors, maternal, environmental, and other factors, and laboratory results. The data is collected by degree-graduated students who have awareness about research with gaining of clear orientation from the investigator how to approach the interviewee and access enough information, which is relevant for the study. The interview will do after the health center laboratory professional do malaria tests for the patient. Close follow up done while the data collection done by the investigator. The data will collect until the sample size is saturated.

Written informed consent was obtained from study participants and data gained was anonymized. Data is used for the purpose of this research only.

Malaria diagnosis is confirmed using microscopic blood films prepared from finger-prick blood samples results collected from selected pregnant women. Experienced laboratory technicians from public HFs prepared thick and thin blood films labelled and air-dried horizontally in a slide tray. Thin films are fixed with methanol for about 30 seconds, and both thick and thin films are stained with 3% Giemsa for 20–30 minutes at the study health facilities by using the WHO 2015 standard malaria laboratory procedures guideline.

Data quality assurance

To maintain the quality of the data preparing clear questionnaire, interview guidelines, checklists and data compilation forms was prepared in bilingual. After preparing questionnaires pre-test is done with 5% of the total sample in an area which is not the part of this research. Data collectors after they gain one day training on how to collect the data. To make this questionnaires

and informant interview guidelines used as data collection instruments, training was given for the data collectors until they get clear understanding of how to collect and approach the interviewee for one and half days and for supervisors. After the data collection, consistency and completeness was checked. Double entry techniques were applied to increase the quality of data. Missed data may be a threat for this study.

Data analysis

The collected data was analyzed as qualitatively and quantitatively. In qualitative way the data which will gain from informant questionnaires was explained in a narrative statement. Whereas the quantitative data will analyze as a category of in descriptive (frequency, percentage, tables, mean and standard deviation) statistics to clarify the willingness of households to participate in community-based health insurance and socio-economic characteristics. The inferential statistics will the other way of analyzing quantitative data which will clarify the variables

that affect willingness of households for the participation of community-based health insurance that are awareness of community health insurance, types of diseases, and frequency of visit and health care services. For the analysis of level of significant of multiple and dichotomous variables' multiple logistic regression were applied by using STATA version 14.

Result

Socio-demographic characteristics of study participants

Overall, 422 pregnant women comprising out of those 328(77.7%) rural and 94(22.2%) urban dwellers participated in the study. Out of these, 249(59%) were no education in their educational status, 231(54.7%) were in the age group of 20–30 years old and 332(78.7%) were farmers (**Table 1**).

Magnitude and knowledge of malaria among pregnant women

The overall magnitude of malaria was 91(21.6%). The highest relative proportion of malaria was found among 2nd trimester of pregnancy, 54(59.3%). In relation to gravidity, the highest relative proportion of malaria was detected among less than two time pregnancy, 61(67.0%) (**Table 2**).

Factors affecting malaria infection among pregnant women

From the bi-variable logistic regression, malaria was significantly associated with all of the variables at a significance level of 0.2. However, from the multivariable logistic regression model only age, Address, marital status, education, occupation, trimester, number of pregnancy and ITN utilization about malaria prevention methods during ANC, trimester of pregnancy, and gravidity were significantly associated with malaria infection during pregnancy. For 1 year increase in the age of the pregnant women, the odds of malaria infection was decreased by 23.4% (AOR = 2.35, 95% CI: 0.32, 16.88). The odds of malaria infection were 1.61 times higher among pregnant women who did not utilize ITN compared to their counterparts (AOR = 1.61, 95% CI: 0.76, 3.38). Pregnant women who had no education about malaria prevention methods during their ANC follow up had 20.40 times increased odds of malaria infection compared to their secondary and above educated (AOR = 20.40, 95% CI: 1.07, 385.93). Women who were in their first trimester of pregnancy had 1.38 times increased odds of having malaria infection compared to mothers on their third trimester (AOR = 1.38, 95% CI: 0.28, 6.80). Women who are in their second trimester of pregnancy also had 2.08 times increased odds of having malaria infection compared to mothers on their third trimester (AOR = 2.08, 95% CI: 0.66, 6.53). The odds of malaria infection were 5.66times higher among women who had their second pregnancy compared to multi gravid women (AOR = 5.66, 95% CI: 1.67, 19.19) (**Table 3**).

Discussion

All inclusive, intestinal sickness mortality rate cases were detailed appearing lessening ordinarily in WHO Africa locales,

Table 1. Socio-demographic of the study participants.

Variables	Response	Frequency	Percent
Age	<20 Years	24	5.7
	20-30 Years	231	54.7
	>30 Years	167	39.6
	Total	422	100
Address or residence	Urban	94	22.3
	Rural	328	77.7
	Total	422	100
Marital status	Single	16	3.8
	Married	371	87.9
	Divorced	21	5
	Widowed	14	3.3
	Total	422	100
Educational level	No educated	249	59
	Read & write	81	19.2
	Primary educated	49	11.6
	Secondary and above	43	10.2
	Total	422	100
Occupation status	Farmer	332	78.7
	Government Employee	30	7.1
	Merchant	45	10.7
	Unemployed	15	3.6
	Total	422	100
Trimester of pregnancy	First trimester	38	9
	Second trimester	254	60.2
	Third trimester	130	30.8
	Total	422	100
Number of pregnancy	<2 Pregnancy	238	56.4
	2-4 Pregnancy	109	25.8
	>4 Pregnancy	75	17.8
	Total	422	100
Attended ANC	No	16	3.8
	Yes	406	96.2
	Total	422	100
Number of ANC visit	< 1 ANC Visit	53	12.6
	1-2 ANC Visit	243	57.6
	>2 ANC Visit	126	29.9
	Total	422	100
First ANC visit of trimester	First trimester	109	25.8
	Second trimester	264	62.6
	Third trimester	49	11.6
	Total	422	100
Mosquito-breeding habitat	Yes	373	88.4
	No	49	11.6
	Total	422	100

where accepted to be tall stack seen. The discoveries of this ponder uncovered that 91 members (21.6%) had intestinal sickness disease. This inspiration rate (21.6%) is more prominent than that detailed in other parts of Ethiopia such as Butajira Arba Minch hospital, and Arsi Negele,26 which had an inspiration rate of 0.93%, 7%, and 11.45%, individually. In any case, our consider inspiration rate was less than that of patients going to Wonago

Table 2. Knowledge of Malaria among pregnant women.

Variables	Response	Frequency	Percent
Health education during ANC	Yes	422	100.0
Heard about malaria in pregnancy	Yes	422	100.0
If you heard what was the source?	Health Care worker	360	85.3
	Mass media	6	1.4
	Religious institute	56	13.3
	Total	422	100.0
Do you have insecticide treated bed net?	Yes	422	100.0
If "Yes", are you utilizing?	Yes	278	65.9
	No	144	34.1
	Total	422	100.0
If "No", why are you not utilizing?	Because I don't believe bed nets will protect me from getting malaria	69	47.9
	Afraid of its toxicity	42	29.1
	Not convenient to use	33	22.9
	Total	144	100.0
Recently contracted malaria	Yes	91	21.6
	No	331	78.4
	Total	422	100.0
If yes, where did you go for treatment?	Health facility	91	100.0
	Total	422	100.0
Where did you get the service?	Adult OPD	14	15.3
	ANC/MCH unit	77	84.6
	Total	422	100.0
Laboratory investigations	Yes	91	100.0
	Total	422	100.0
If "Yes" how was the sample taken?	Pricked my fingertip and took drop of blood on to piece of glass	78	85.7
	Pricked my fingertip and took drop of blood on to white bar	13	14.2
	Total	422	100.0
Prevent yourself from getting malaria	Bed net	249	59.0
	Taking medications	31	7.3
	Keeping environment surrounding the house free from water sources	54	12.8
	Destroying mosquito breeding sites	88	20.9
	Total	422	100.0

wellbeing centers (28.1%), Hadiya (25.8%), Kersa Woreda (43.8%), 28 and Hallaba (82.8%). 9 The watched contrasts might result from elevation, regular, or other climate varieties that contribute to Anopheles mosquito breeding as well as the jungle fever control measures executed within the ponder areas.

For Plasmodium species, *P. vivax* accounted for most of the cases. This finding is in assention with the think about conducted at the Hallaba wellbeing center, with 70.41% of diseases caused by *P. vivax* and 23.08% caused by *P. falciparum*, whereas the rest (6.51%) were blended infections. Our comes about are (64.5%

Table 3. Associated factors of malaria in pregnancy.

Variables	Response	Malaria contacted		COR (CI 95%)	AOR (CI 95%)
		Yes (N)	No (N)		
Age	<20 years	7	17	1	1
	20-30 years	55	176	1.31(0.51, 3.34)	3.79(0.69, 20.60)
	>30 years	29	138	8.10(0.74, 5.15)	2.35(0.32, 16.88)
Address or residence	Urban	23	71	1	1
	Rural	68	260	1.23(0.72, 2.12)	2.23(1.05, 4.73)
Marital status	Single	4	12	1	1
	Married	85	286	1.12(0.35, 3.56)	1.94(0.37, 10.13)
	Divorced	2	19	3.16(0.50, 20.03)	2.66(0.22, 32.23)
Education	No education	66	183	1	1
	Read& write	11	70	2.29(1.14, 4.60)	4.96(1.82, 13.46)
	Primary	12	37	1.11(0.54, 2.26)	9.38(1.70, 51.56)
	Secondary& above	2	41	7.39(1.74, 31.42)	20.40(1.07, 385.93)
Occupation	Farmer	79	253	(0.03, 1.76)	1.01(0.04, 21.64)
	Government employee	2	28	(0.08, 11.99)	0.52(0.11, 2.45)
	Merchant	9	36	(0.03, 2.46)	0.83(0.03, 23.79)
	Unemployed	1	14	1	1
Trimester	First trimester	23	15	1	1
	Second trimester	54	200	5.67(2.77,11.62)	2.08(0.66, 6.53)
	Third trimester	14	116	12.70(5.40,29.86)	1.38(0.28, 6.80)
Pregnancy	<2 Pregnancy	61	177	1	1
	2-4 Pregnancy	24	85	(0.71, 2.09)	1.44(0.47, 4.41)
	>4 Pregnancy	6	69	(1.63,9.58)	5.66(1.67, 19.19)
Bed net use	No	37	224	1	1
	Yes	54	107	1.43(0.89, 2.31)	1.61(0.76, 3.38)

As it were Plasmodium falciparum 21.5% as it were *P. Vivax* and 14% were blended (both PF & PV) moreover close comparative to the consider conducted at Aleta Wondo that appeared 66% *P. vivax* and 34% *P. falciparum* infections. The comes about of the consider conducted at wellbeing centers in Dilla town 6 moreover appeared that *P. vivax* accounted for 62.5% of contaminations, taken after by *P. falciparum* at 26.8%, and blended diseases with both *P. vivax* and *P. falciparum* at 10.7%, which is in assention with the display discoveries. An 85% predominance of *P. vivax* was too detailed within the range encompassing Dilla town. A think about conducted by Ketema et al. on the helpful viability of CQ treatment for *P. vivax* appeared a two-fold increment within the predominance of CQ-resistant *P. vivax* in South Ethiopia. This dominance of *P. vivax* within the range may require usage of interesting intercessions to control vivax malaria in expansion to customary control measures such as insecticide-treated nets and indoor leftover showering.

Within the present study, male appeared the next predominance of jungle fever disease compared with female, but the contrast was not measurably critical; typically in understanding with the comes about of a review ponder that was conducted at Batu town wellbeing facilities. This result is additionally in agreement with the discoveries of Regasa at Arba Minch clinic and Alemu et al. [17] from Jimma town who detailed higher jungle fever disease rates among male compared with female. The higher inspiration rate of intestinal sickness among male may well be since male lock in in open air exercises and diversion at night exterior the

domestic, which makes them more likely to be close Anopheles mosquitoes breeding destinations.

Jungle fever contamination moreover happened among all age groups. However, the most elevated jungle fever disease happened in members who were more seasoned than 14 a long time, and the distinction was factually noteworthy. This result is in assertion with the discoveries of Regessa [5] and Molla and Ayele [6] The most elevated intestinal sickness inspiration rate in this age gather can be since these members are absent from domestic amid the time when Anopheles mosquitoes chomp. A think about conducted by Kenea et al. at Adami-Tulu Jido Kombolcha (which is near to our ponder range) appeared that a more noteworthy extent (76.6%) of human gnawing action by the Anopheles mosquito happens outside compared with inside amid the early portion of the night. The crest gnawing time for an arabiensis (the major vector within the area) starts within the early evening. Additionally, consider conducted on Bioko Island, Tropical Guinea, appeared that a tall level of open air gnawing by *An. gambiae* (s.s) happened all through the night. Within the current ponder range, more jungle fever cases were identified amid June and July compared with in April and May, but there was no factually noteworthy contrast. This could be since in April and May, it was the dry season, but rain happened amid June and July, which might make a conducive breeding ground for Anopheles mosquitoes. By and large, regular variations in intestinal sickness transmission are a well-established highlight of unsteady intestinal sickness, where in Ethiopia, 2.6% of jungle

fever cases were detailed within the dry season (April and May) and 5.8% of jungle fever cases were detailed amid the damp season (September-November).

In government wellbeing offices (healing center and wellbeing centers), there was a propensity to treat patients who were clinically suspected of having jungle fever in expansion to those patients with research facility parasitology-confirmed cases. Be that as it may, private wellbeing offices have a strict policy not to treat patients with only clinically suspected jungle fever. They treat jungle fever patients as it were once the contamination has been affirmed minutely. This can be why the expansive contrast in treatment recurrence was observed between government and private wellbeing facilities. To kill intestinal sickness, including the private wellbeing division is fundamental for total and opportune announcing of jungle fever cases. Exploring the part of private wellbeing offices within the town in diagnosing and treating patients who are contaminated with jungle fever appeared that more patients were going to these facilities. An overview that was conducted by Jerene et al. appeared that 86% of private wellbeing offices in Oromia Territorial State in Ethiopia were giving jungle fever demonstrative and treatment administrations [18-20].

Within the display consider, living close stagnant water was identified as a hazard figure for intestinal sickness disease. Among those tainted with intestinal sickness, more cases happened in patients who lived close stagnant water compared with those who did not live close stagnant water. This may be since stagnant water may be an appropriate breeding ground for Anopheles mosquitoes. Furthermore, members whose houses were not splashed with bug spray were more likely to have a jungle fever contamination than those whose houses were showered with bug spray. Members who had and utilized insecticide-treated nets were less likely to gotten to be contaminated with jungle fever than those who did not have bed nets, which are in assertion the discoveries of Molla and Ayele and Belete and Roro.

Conclusion

The think about found that the in general greatness of intestinal

sickness among pregnant ladies within the ponder region was found to be tall (21.6%). The tall extent of this jungle fever species in our responder may be a clear suggestion that there's require for forceful prevention and control of the maladies, particularly among pregnant ladies. Since Plasmodium falciparum causes the foremost extreme frame of the illness and it can cause destroying complications not as it were for the mother but moreover for the embryo. Components essentially related with jungle fever were as it were two components; the nearness of water lake locales and how frequently ITNs being utilized.

Recommendation

Based on the discoveries of this consider, the taking after suggestions are sent

- Area health offices ought to give broad-scale health instruction and mindfulness building ventures to the pregnant ladies communities with respect to cleaning their environment and expelling stagnant water pools as to anticipate mosquito plenitude and thus diminish jungle fever frequency.
- The health care suppliers ought to provide wellbeing instruction sessions to the pregnant ladies amid schedule care visits and instruct them distinctive intestinal sickness avoidance strategies particularly the significance of ITNs.
- Additionally, it would be superior in case concerned partners increment the community's information in common and the pregnant ladies in particular approximately intestinal sickness and its results as well as its preventive strategies. This might offer assistance advance the healthcare looking for behavior of people which may be a venturing stone to decrease the predominance of jungle fever among pregnant moms.

Encourage considers on the particular sorts and other causes of jungle fever utilizing more progressed hardware may persuade more cantered clinical administration of chosen pregnant ladies and result in fundamental advancements in their generally health and survival.

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