WOLKITE UNIVERSITY

COLLEGE OF MEDICINE AND HEALTH SCIENCES

SCHOOL OF MEDICINE

SERO-PREVALENCE AND FACTORS OF HEPATITIS B VIRUS INFECTION IN PREGNANT WOMEN ATTENDING ANTI-NATAL CARE IN WOLKITE UNIVERSITY HOSPITAL, WOLKITE, ETHIOPIA, 2023: A HOSPITAL BASED RETROSPECTIVE STUDY

BY: Dr. LEGESSE MITIKU (MEDICAL INTERN)
Dr. LEUL ALEMU (MEDICAL INTERN)
Dr. TSEYON FISEHA (MEDICAL INTERN)
Dr. ZEMAWIT ASHENAFI (MEDICAL INTERN)

ADVISORS: Dr. TEMESGEN TANTU (MD, OBGYN)
ABATE L. (ASS,T PROFESSOR)
Mr. ABEBE T.

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Sero-Prevalence and Factors of Hepatitis B Virus Infection in Pregnant Women Attending Anti-Natal Care in Wolkite University Hospital, Wolkite, Ethiopia, 2023: A Hospital Based Retrospective Study

By: Dr. LegesseMitiku (Medical Intern)
Dr. Leul Alemu (Medical Intern)
Dr. TseyonFiseha (Medical Intern)
Dr. ZemawitAshenafi (Medical Intern)

Advisors: Dr. TemesgenTantu (MD, OBGYN)
Abate L.(Ass,t Professor)
Mr. Abebe T.

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Wolkite- Ethiopia.

Abstract

Background: Hepatitis B virus (HBV) is one of the major threats to global health, affecting millions of people each year and causing morbidity and mortality. Its infection in pregnancy is associated with direct effect on pregnancy and potential viral transmission from mother to newborn. The risk of acquiring chronic HBV infection varies with age, with 90% of infections acquired during the perinatal period. Its infectivity is 100 times that of the human immunodeficiency virus (HIV). Therefore, this study was conducted to assess the prevalence of HBV and its associated factors among pregnant mothers attending antenatal care at Wolkite University Specialized Teaching Hospita (WkUSTH)l in Wolkite, Southern Ethiopia 2023.

Objectives: to determine the prevalence and associated factors of Hepatitis B infection among pregnant women attending antenatal care in WkUSTH, Ethiopia.

Methods: an institution based retrospective study was conducted in WkUSTH Anti-natal care visits of pregnant mothers between July 11, 2023-August 23, 2023. A total of 302 pregnant women selected using simple random sampling technique. A pre-tested structured questionnaire was used to assess variables.Data were entered into Epi-info and transportedto SPSS. Descriptive statistics was performed for all variables. Bi-variable and multivariate logistic regression was performed to test the COR & the AOR respectively. Multi-collinearity was checked. Variables with P-vale <=0.2 in the bivariate entered in to multi-variable analysis.

Multivariate P-value of <=0.05 was considered significant.

Result: Overall, 18(6.0%) were positive for HBsAg. Previous history of home delivery(AOR = 3.2(1.12–6.2)), scarification (AOR = 4.48(1.1-5.7)), multiple life time sexual partner (AOR=3.75(1.26-8.1))and Age>=25 (AOR= 3.35(1.1-4.9)) were significantly associated with HBV infection.

Conclusions & recommendations: Endemicity was intermediate. Multiple sexual partners, history of STD, body scarification, induced abortion, age>=30, contact with liver diseases patient and lower income were the major associated factors. Giving health information, prevent unwanted pregnancy, improve safe abortion care, controlling STI, avoiding body tattooing and empowering women are important.

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Acronyms and Abbreviations

ANC Anti-Natal Care

AOR Adjusted odds ratio

CI confidence interval

COR Crude odds ratio

DNA deoxyribonucleic acid

ELISA Enzyme Linked Immuno Sorbent Assay

EPHI Ethiopian Public Health Institute

ETB Ethiopian Birr

HBIG Hepatitis B Immuno Globulin G

HIV Human Immunodeficiency Virus

HBV Hepatitis B Virus

HBsAg Hepatitis B Surface Antigen

HCV Hepatitis C Virus

HBIG Hepatitis B Immuno Globulin

HMIS Health Management Information System

MTCT Mother to Child Transmission

SPSS Statistical Package for the Social Science

STI Sexually Transmitted Infections

WkUSTHWolkite University Specialized Teaching Hospital

WHO World Health Organization

WKU Wolkite University

1. Introduction

1.1. Back ground

Hepatitis B virus (HBV) infection is one among the prominent public health problems globally. The disease is caused by hepatotropic deoxyribonucleic acid (DNA) virus and is potentially life-threatening. About 2 billion people have been exposed to HBV of which 360 million becomes lifelong carriers (1). Annually an estimated nearly a million of deaths are occurred due to HBV- related liver disease including chronic hepatitis, cirrhosis and hepato-cellular carcinoma, which is the six leading cause of death globally. Hepatitis B virus causes both acute and chronic hepatitis. The global prevalence of chronic HBV infection is clustered as high (≥8%), intermediate (2-7%) and low (<2%) (2). Thus, Ethiopia belongs to the high prevalence category.

Hepatitis B virus can cause coagulation defects, postpartum hemorrhage, organ failure, and high maternal mortality, as well as poor newborn outcomes such as stillbirth, neonatal deaths, severe, and prolonged liver disease. Early intervention and prevention of these illnesses is now a priority, with universal screening in antenatal care (ANC) and as part of reproductive health programs. It has an average incubation period of 75 days and can be detected in the blood within 30–60 days (3). In light of this, the virus is more contagious and powerful than the human immunodeficiency virus (HIV).

According to the World Health Organization (WHO) Global Progress Report on human immunodeficiency virus (HIV), Viral Hepatitis and Sexually Transmitted infections (STI), the prevalence of hepatitis B in the general population in 2021 will be highest in the WHO Africa Region, with the estimated prevalence of 7.5%. In Ethiopia, prevalence of HBV in the general population ranged from 6% to 7.4% and in children under 5 years of age is 5.7% and the prevalence of HBV infection among pregnant mothers were a major source of disease for newborns is 5.7%. Furthermore, the WHO reported that hepatitis is responsible for 1.34 million deaths, which is equivalent to deaths due to tuberculosis but higher than deaths due to HIV. In addition, 1.8 million children less than 5 years are living with *hepatitis B virus* infection (4). Due to the high price of the vaccine, private access is less likely.

As a part of the sub-Saharan region, in Ethiopia, even if there is a lack of data representing the spread of *HBV* infection nationally, according to the findings of some individual studies, the country is regarded as having a high burden of the disease.

The prevalence of miscarriage was higher among HBV carriers 9.36% Vs 5.70% P< 0.001. Mother to child transmission (MTCT) is reduced to 5- 10% if infant gets proper prophylaxis but despite active and passive immuno-prophylaxis 8-30% of infant born to highly veremic mother still becomes infected with HBV (5). Being infected with HBV was associated with preterm birth AOR 1.4 (p=0.001), Low birth weight 1.39 P= 0.009, Preterm premature rapture of membrane 13.2%- 8% P< 0.02, congenital anomalies AOR 1.55 P= 0.01 and the chance of becoming chronic carriers for infected fetus is 95%. If an exposed infant only uses HBV vaccine it has 26-36% of risk of developing HBV while Hepatitis B Immuno Globulin(HBIG) reduce the risk to 15-20% but if we use it the HBV vaccine with HBIG the risk reduced to 5-10%. Greater than 60% of MTCT occurred at term. Therefore, the prevention of vertical transmission of HBV is very important.

1.2. Statement of the problem

The secret killer hepatitis B, though a chief danger to health in the country, is yet to catch the interest of health institutions, policy makers, the general public and decision makers. Gurage zone has a total population of 1, 400, 0000 and covers areas of 5,932km^2 according to the 2015 census conducted by the Central Statistical Agency of Ethiopia (CSA). There are 8 hospitals & 72 functional health centers providing health services. Anti-natal care (ANC) coverage of the zone is estimated at 64.9% according to International Institute for Primary Health Care-Ethiopia 2017(6).

The WHO estimates that approximately 296 million people had chronic viral hepatitis in 2020 with 1.5 million new cases occurring each year and 2.7 million people were coinfected with HIV. Complications and mortality caused by HBV is much more than HIV. In Ethiopia, even there is a lack of data representing the spread of HBV nationally, some findings regarded the country as high burden of the disease. Systematic reviews and meta-analysis revealed that the prevalence in general population ranged from 6% to 7.4% whereas 5% to 7% of pregnant mothers were a major sources of disease for newborns. Despite anti natal service coverage the availing of test kits and materials for hepatitis B virus infection was ignored in almost all of the health facilities

more over no incorporation of HBV reports in the health management information system (HMIS) data flow. There are no known studies that have examined the level of the HBV in the Zone and in WkUSTH with its associated factors.

Many health institutions attempt to improve the situation through the training of professionals, ordering HBV-vaccination for infected mothers, and expanding health education however; these efforts are not based on systematic evidence into prevalence and associated risk factors. Determining the prevalence and associated factors of Hepatitis B infection among pregnant women attending antenatal clinics in WkUSTH and planning on it is a crucial issue. There for this study is intended to contribute in bridging the information gap in the area.

1.3. Significance of the study:

This study will give emphasis of conducting hepatitis B virus burden to pregnant mothers, hoping that pregnant mothers, do have, an increased susceptibility to many infection, the pregnancy may induce minor infection of liver to a clinical case. At least testing and managing pregnant mothers could reduce the transmission of HBV from the mother to her fetus or child. In doing so we can protect the evil effectof HBV infections from the mother and the coming (children) generation with a single intervention implementing today.

Despite the fact that the disease is endemic in all populations and/or pregnant mothers in the country, there has been no research done in Wolkite, Southern Ethiopia, where the prevalence and factors associated with HBV infection among pregnant mothers are unknown. Furthermore, evidence-based information on the prevalence and risk factors for HBV infection in pregnant women enables effective HBV prevention and management. Therefore, the present study is aimed to estimate the seroprevalence and to identify factors associated with *hepatitis B virus* infection among pregnant mothers attending ANC of WkUSTH in Wolkite, Ethiopia. In addition the study may be used as a base line to conduct future researches in the area.

2. Literature Review

2.1. Prevalence of HBV Infection

The prevalence of HBV in pregnancy varies with socioeconomic development of nations. A study done in USA showed a prevalence of 0.4%, Beijing 5.72%, Central china 1.61%, India 4.6% in one and (8-10 %) and 1.56% in Iran.

In Africa the prevalence of HBV infection is among the top in the globe. Different studies showed the prevalence as 9.7% in the Buea Health District of Cameron and, Nigeria, 8.3% at Tanzania.

In Ethiopia the prevalence of HBV in pregnant women and in the general population varies within regions. The prevalence among pregnant women was estimated to be around 6.9% in Deder, Eastern Ethiopia, 2.5% in Northern-Ethiopia, 3.8% among pregnant women at ANC clinics in Bahir Dar and 4.4% among maternity ward attendees of FelegeHiwot Referral Hospital, northwest Ethiopia. In addition, there was an estimation of HBV prevalence as of 7.4% in the general population in a study done in Goba south-eastern Ethiopia, 4.3% in Arba Minch Hospital, South Ethiopia, 6.05% among delivering mother and 3.0% in other study among pregnant women of Addis-Ababa.

The overall seroprevalence of hepatitis B virus infection was 8% [95%confidence interval (CI): 5.3–11.0] among pregnant mothers in study made at Hararghe, eastern Ethiopia.

2.2. Associated factors for HBV infection

Socio demographic characteristics are the most usual determinant factor in the development of disease causation as evidenced by different studies in the world. Different studies demonstrated the existences of differences in level of infection for HBV.

A similar study in Iran in Beheshti Hospital of Kashan , Isfahan 2015 identified uneducated cases have an odds of 2 times than the odds of the educated group , age groups less than 30 AOR(4.65) times the odds of the lower groups in the Buea Health District of Cameroon 2014 In addition the age group less than 30 years of old and low level of education x2= 6.52 p= 0.028 were the criticized risk factors for HBV infection as proposed by the results of a study in

Southwestern Nigeria 2015 in one and age group 19-33 years has an AOR of 2.05 increased parity, farmer women 29.1% and none or low level of education has an AOR of 2.04 were the most observed risk factors to HBV infection in another studies of Nigeria.

In study done in Ethiopia at public hospital in borena zone, southern Ethiopia the odds of HBV infection were about 3 times higher among pregnant mothers who had a history of hospital admission when compared to those who had no history of hospital admission. This result is in line with the study reported from Ambo town, Desie, Gedeo zone, Agena health center,Gurage zone, West Hararghe public hospitals.

This might be due to that the hospitalized women might easily acquire the infection during a different procedure than the pregnant women who had no history of hospital admission. In this study, pregnant women with traditional tonsillectomy have 4 fold chance to have HBsAg seropositivity compared with their counterparts. The finding of this report is similar to the study conducted in Felegehiwot referral hospital and West Hararghe Public Hospital. This study revealed the traditional surgery of tonsillectomy was done in an area where appropriate sterilization was not followed. Therefore, the virus easily transferred from a career to a healthy woman.

Regarding the history of sexually transmitted infection, women who had a history of sexually transmitted infection were 6 times more likely to have an infection with HBV than those who had no history of sexually transmitted infection. This finding was similar to the study conducted in Jinka Hospital 48 and Harar city. The finding of this study revealed that HIV co-infection was highly significantly associated with HBV infection, with HIV-infected women being around 8 times more likely infected by HBV than HIV-non-infected women.

Pregnant women who had a history of alcohol drinking were about 5 times at higher risk when compared with those who had no history of alcohol drinking. The possible explanation for this occurrence might be alcohol intake is associated with risky sexual behavior and chronic alcohol intake has adverse effects on the liver.

HBV had a significant association with having history of, blood transfusion, injection, reuse of syringe and surgical procedures according to a study done in Pakistani Punjab on the status of Hepatitis B virus infection among different sex and age groups. Patients in hemo- dialysis were associated with having HBV infection than patients without hemo-dialysis as the findings of a study

in Korea on epidemiology and prevention of hepatitis B virus infection. In addition, having history of blood transfusion had AOR of 12.59(1.46-108.89) times the odds of cases without history of blood transfusion as presented by a study on the prevalence, infectivity and correlates of hepatitis B virus infection among pregnant women in a rural district of the Far North Region of Cameroon. Still Blood transfusion AOR=2.3(1.1-4.6) and induced abortion AOR=2.2(1.3-3.6) were also found to have an association with HBV infection in Nigeria.

History of previous abortion AOR=10.9(2.2-53.9) and history of surgical procedure AOR= 12.8(1.68-97.06) were found to be associated with HBV infection as pointed out in the study of condition of Hepatitis B virus infections and associated factors among pregnant women attending antenatal care clinic at Deder Hospital , Eastern Ethiopia. HBV infection was found to be associated with blood transfusion AOR of 3.7(1.02-14.84) and AOR of 11.1 (2.64-46.88) with history of major surgery. History of tooth extraction and history of abortion were also significantly associated with having HBV infection according to a study in Goba general hospital.

Individuals with HBV infection had an odd of exposure to abortion 7.77(1.54-39.3) times the odds of exposure for participants free of HBV infection as presented in another study on the level of seroprevalence and predictors of Hepatitis B Virus infection among pregnant women attending routine antenatal care in Arba Minch Hospital. History of dental procedure (AOR=4.104) was also identified to have medical associated to HBV infection.

3. Objectives

3.1. General objective:

Determine the prevalence and associated factors of Hepatitis B infection among pregnant women attending antenatal care clinics in Wolkite University Specialized Teaching Hospital, Wolkite, Southern, Ethiopia, 2023.

3.2. Specific objectives:

- To determine the Prevalence of Hepatitis B virus infection among pregnant women Wolkite University Specialized Teaching Hospital, Wolkite, Southern, Ethiopia, 2023.

- To identify factors associated with Hepatitis B virus infection among pregnant women in the hospital.

4. Research Methodology

4.1 Study Design

An institutional cross-sectional study design was conducted on pregnant ladies attending ANC follow-up at WKUSTH ANC clinic during study period.

4.2 Study Area

The study was conducted at WKUSTH, which is one of teaching hospitals found in Ethiopia. It is located South Western part of country around 165 km from Addis Ababa (A.A). WUSTH is the only specialized hospital in Gurage zone and it provides service to clients from Wolkite town, from the whole Weredas of Gurage Zone and its surrounding Oromia and Southern region Zones.The University is established in 2004 E.C and the WUSTH started service in 2012 E.C.

4.3 Study Period

The study was conducted from July 11, 2023 to August 19 2023.

4.4 Source Population

The source population was all pregnant women visiting WkUSTH for ANC care.

4.5 Study Population

All pregnant women who visit WKUSTH, ANC clinic during study period.

4.6 sample size and sampling technique

4.6.1. Sampling technique

Simple random sampling technique was used during data collection.

4.6.2 Sampling size

The sample size of the study was determined using a single population proportion formula by considering the prevalence of HBV infection in pregnant women at the Deder hospital in Southern, Ethiopia, with a prevalence of 6.9%, a 95% confidence interval and a marginal of allowable error 3%.

Is calculated using

SE= Sample Error

$n = \frac{(Z^2)\, pq}{(SE)^2}$ Z= 1.96(95% confident interval

d= 0.03 marginal error

P= Prevalence and Associated Factors with HBV infection in pregnant mothers ANC visits of WkUSTH

n= minimum sample size

$n = \frac{(1.96)^2\ 0.069(1-0.069)}{(0.03)^2}$

n= 274.2006= 275

By using correction, final sample size

With 10% contingency

N= 275+ (275× 10%)= 302.5= 302

4.7 Data collection methods

A pretested and structured questionnaire adapted from the WHO checklist for the assessment of *hepatitis B infection* in antenatal patients was used to collect information on sociodemographic information, circumcision, history of blood transfusion, risky sexual behavior, history of hospital admission and surgery, history of abortion, contact with HBV-infected individuals, and other factors (7).

4.8 Operational definitions

The following operational definitions were used in this study:

Prevalence: Percentage of pregnant mothers that were affected with HBsAg during this study period at this study place.

Abortion: Spontaneous or deliberate ending of pregnancy before the fetus could be expected to survive.

Female circumcision: Comprises all procedures that involve partial or total removal of the external female genitalia traditionally.

Piercing: This is a type of body beautification where a sharp material punctures a hole in the body ears or nose parts where jewelry had been inserted.

Tattoo: Is any form of body art that is created when ink is inserted, using a needle or other sharp materials into the dermis layer of the skin.

Tonsillectomy: Traditional tonsillectomy: Complete or partial removal of tonsils traditionally.

Chronic HBV infection: Defined by the continued presence of HBsAg in the blood for longer than 6 months.

Knowledge: In this case, participants who scored 50% and above from all asked questions were labeled as have good knowledge and those who scored less than 50% were labeled as having poor knowledge on HBV infection and transmission (8).

4.9 Data processingand analysis

Data were checked for completeness and consistency of the collected information, coded and entered into and exported to Statistical Package for the Social Science (SPSS) version 25.0 software package for analysis. Descriptive statistical analysis was done using frequency tables, and proportions were used to summarize the data.

We will use different variables for identifying associated factors for HBV infections in pregnant women visiting WkUSTH ANC clinics like; parity, gestational ages, history of abortion, history of tattooing history of surgical procedures and female genital mutilation.

4.10 Ethical consideration

Ethical approval for this research was obtained from the Wolkite University Research Ethics and Review Committee. The purpose of the study was well explained to the participants before taking information, and informed consent will be obtained.

5. Results

5.1. socio demographic and reproductive characteristics

Data were collected among 302 participants making a response rate of 100%. The median age of the study subjects was 27.0 years (IQR =6) with majority of them falling in the 20-24years age categories. This age category constituted 120 (39.7%) of the total pregnant women and the lowest number (1.32%) of pregnant women was in the 40–45 years age category.

Majority of the subjects were married (92.05%) followed by single (5.2%). and about 129 (47.2%) of them were housewives, followed by 113 (37.4) merchants while only 5(1.7%) were formally employed in government sectors. Nulli-parous respondents constitute the majority with 89(29.5%) of the participants, around three-fourth of them 144(47.68%) were in their third trimester (>28 completed weeks) (table 1).

Table 1: Socio-demographic and reproductive characteristics of pregnant women studied in the ANC of WkUSTH, March 1-August 1/2023.

Variable	Category	Number	Percent
Age (Years)	15-19	21	6.9
	20-24	120	39.7
	25-29	91	30.1
	30-34	48	15.89
	35-39	53	5.96
	40-45	4	1.32
Marital Status	Married	278	92.05
	Divorced	5	1.65
	Widowed	3	0.99
	Single	16	5.29
Occupation	Employed(Gov't)	5	1.7
	House Wife	129	42.7
	Merchant	113	37.4
	Private work	55	18.2
Gestational weeks	First Trimester(<14 weeks)	17	5.62
	Second Trimester[14-28 weeks]	141	46.68
	Third Trimester(>28 weeks	144	47.68
Parity	0	89	29.5
	1	157	52.0

2and above	56	18.5

NB-<= less than or equal to, > greater than,

5.2. Description of other factors of HBV infection

Concerning the sexual history and practice of participants around half 159(52.6%) of subjects had had at least two life time sexual partners. Body scarification was observed on 36(11.9%) of participants. Moreover 18(6.0%) experienced at least one induced abortion in their life time (table 2).

Table 2: Sexual, behavioral, cultural practice and knowledge related factors among participants in ANC of WkUSTH, Wolkite, Ethiopia 2023.

Variable description	Category	Frequency	Percent
Number of life time sexual partner	Only one	143	47.4
	Two to five	159	52.6
Circumcision history	Yes	114	37.7
	No	188	62.3
Previous history of induced abortion	Yes	18	6.0
	No	284	94.0
Body scarification	Yes	36	11.9
	No	266	88.1
History of previous surgery	Yes	23	7.6
	No	279	92.4
Previous blood transfusion	Yes	17	5.6
	No	285	94.4
Participants past HIV test result	Positive	0	0.0
	Negative	302	100.0

5.3. Prevalence and associated factors of HBV infection (bivariate)

A total of 18 out of 302 respondents' sample had serologic evidence of infection with viral hepatitis which was detected to be positive for HBsAg. This gives a prevalence of 5.96%. These quality controlling test results and the recorded results of the hospital were found to be similar for all.

No crude association was observed between participants' socio demographic characteristics and HBV infection except age. HBsAg sero-positivity was detected in most

of age categories except for 35–39 and 40–45 years old. The highest age-specific prevalence was identified in the age group 25–29. Generally the age specific attack rate increases with age. Moreover, age group 25 and above were 4.72 times more likely to be reactive to HBsAg than the age groups less than 25 years (P=.001).

The odds of having a positive serum HBsAg are 8.66 times greater for women exposed to body scarification than for those pregnant women without such exposure at a 5% significance level (P=.001). But it is 4.96(2.3-9.10) times more likely to find prior exposure to multiple sexual partner (>=3) among pregnant women experiencing a positive HBsAg result than among pregnant women experiencing a negative serum HBsAg result which was statistically significant at 5% level of significance (P=.000). home delivery was also associated with increased prevalence of HBV infection with having 3.75 times more likely to be positive.

Table 3: Bivariate analyses of factors associated with HBV infection in the study participants,WkUSTH,Wolkite, Ethiopia, 2023.

Variables	Category	HBsAg (N & %)		COR (95% C.I)	P-value
		Positive (18)	Negative (284)		
Marital Status	Married	15(83.3)	260(91.5)	1.0	0.89
	Divorced	2(11.2)	8(2.8)	1.43(0.32-6.35) 4.33(2.43- 6.67)	0.64
	Never Married	1(5.5)	16(5.6)	0.98(0.13-7.65)	0.98
Occupation	Employed	9(750.0)	142(50.0)	1.0	.224
	Unemployed	9(50.0)	142(50.0)	1.0(	
Gravidity	Prim-gravid	7(26.5)	45(15.8)	1.0 0.77-3.1) -2.5)	
	Multi-gravid	11(73.5)	239(84.2)	1.16(.53	.705
Parity	0	7(38.9)	213(40.6)	1.0	.245
	1	5(27.8)	145(27.6)	1.19(0.56-2.5)	
	>2	6(33.3)	167(31.8)	0.49(0.17-1.4)	
Gestational weeks	(<14)	2(5.9)	27(5.1)		.587
	[14-28]	10(29.4)	116(22.1)	1.0 1.16(0.24-5.6)	.850
	(>28)	22(64.7)	382(72.8)	0.78(0.17-3.48)	.742
Scarification	Yes	8(44.4)	24(13.1)	8.66 (2.66/20.0)	.001*
	No	10(55.6)	260(86.9)	0.39	
Age Category	<25 years	3(16.7)	138(48.6)	0.01	
	>=25 years	15(83.3)	146(51.4)	4.72(3.15-6.29)	.001*

Table 3- Continued

Variables	Category	HBsAg (N & %)		COR (95% C.I)	P-value
		Positive	Negative		
Life-Time Sexual Partner	<=3	12(66.7)	258(90.9)	1.0	
	>3	6(33.3)	26(9.1)	4.96(2.3-9.10)	.000*
H_X Surgery	Yes	1(5.6)	19(6.7)	0.96(0.46-2.9)	.753
	No	17(94.4)	265(93.3)	1.0	
H_X Blood-transfusion	Yes	1(5.6)	15(5.2)	0.91(0.12-7.0)	.924
	No	17(94.4)	269(94.8)		
Hx Induced Abortion	Yes	2(11.1)	16(5.7)		0.39
	No	16(88.9)	268(94.3)	1.0	
Site of delivery	No	2(10.5)	30(10.5)	1.0	.037
	H/Facility	12(66.6)	238(83.8)	0.73(0.35-1.5)	.405
	Home	4(22.9)	16(5.7)	3.75(1.06-12.1)	.011*

NB. COR-crude odds ratio, N-number, NA-not applicable, 1.0-reference category

5.4. Associated factor to HBV infection (multivariable)

The variables (age,home delivery, scarification, and history of multiple sexual exposures) were found to be associated with HBV infection in the Bivariate analysis. They were entered into the multivariate logistic regression model.

Among the 161 participants in the age category of greater than or equal to 25, fifteen (10.2%) developed the illness as compared to 2.2% in the comparator group. This indicates that the odds of being infected with hepatitis B Virus infection are 3.35 times greater for women aged greater than or equal to years than for those with lower ages (P=0.025).

Those who had body scarification were 2.5(1.1-5.7) times more likely to have infection with HBV than their counterparts with P = 0.031.

Pregnant women who had previous history of home delivery has 3.2(1.12-6.2) times more likely to be positive for viral hepatitis than the counter parts. Those of mothers with multiple sexual partners are found to havea 3.75 (1.26-8.1) more risk of having the infection with P- value of 0.025 (Table 4).

Table 4: Association of explanatory variables and hepatitis B virus infection among pregnant women attending antenatal care at WkUSTH, Wolkite, Ethiopia 2023

Variables	Category	HBV Status N (%)		COR (95% C.I)	AOR (95% C.I)	P-Value
		Negative (284)	Positive (18)			
Age classification	<25 years	138(48.6)	3(16.7)	0.01	1.0	.025*
	>= 25 years	146(51.4)	15(83.3)	4.72(3.5-6.29)	3.35(1.1-4.9)	
Scarification	Yes	24(13.1)	8(44.4)	8.66(2.6-20.0)	4.48(1.1-5.7)	.031*
	No	260(86.9)	10(55.6)	1.0	1.0 2.31(1.06-4.9)	
Site Of delivery	No	2(10.5)	30(10.5)	1.0		.034*
	H/Facility	12(66.6)	238(83.8)	0.73(0.35-1.5)	1.0	
	Home	4(22.9)	16(5.7)	3.75(1.06-12.1)	3.2(1.12-6.2)	
Life Time Sexpart.	<=3	258(90.9)	12(66.7)	4.96(2.3-9.10)	3.75(1.26-8.1)	.025*
	>3	26(9.1)	6(33.3)	1.0	1.0	

NB- COR-crude odds ratio, N-number, AOR-adjusted odds ratio, 1.0-reference & *-significant

6. Discussion

A hospital-based cross-sectional study was carried out at the antenatal clinic of Wolkite university specialized teaching hospitalWolkite, Ethiopia. Three hundred two pregnant women were recruited, their serum analyzed for Hepatitis B surface antigen, while socio demographic characteristics and risk factors for HBV infection was assessed with. The overall seroprevalence of HBsAg among pregnant women attending anti-natal care in was 6.0% (95% CI: 4.1-8.0). In accordance to WHO interpretation, the finding grades the study setting as an area with moderate HBV disease endemicity(5). The observed status of the infection indicates that there is a great risk of transmission of HBV infection from mother to child unless proper intervention has been implemented. The prevalence was higher among pregnant mothers who have history of multiple sexual partner, scarification and had aborted previously. Unsafe sexual practice and improper use of unsterilized sharp instruments are the key way of transmission of HBV among women of the childbearing age.

The Sero-prevalence of HBsAg among pregnant women attending ANC care in WkUSTH was comparable with a study done in, Borena Zone public hospital, Southern Ethiopia(5.7%), southern Nigeria (6.6%). In contrast to our study the highest prevalence was reported from Asia (8-10%), Uganda (41.0%), Tanzania (8.3%), Malawi (8.7%) Nigeria(8.3%) and far north Cameroon (20.4%) from abroad and DedereasternEthiopia(6.9%) and abortion care seeking mothers (7%) in Bair Bar. On the other hand, the lowest prevalence was reported from western cape South Africa (3.5%) and (3.8%) ANC mothers in Bahir-Dar, FelegeHiwot hospital (4.4%) and Arbaminch (4.3%) and saint Paul's hospital in Addis Ababa (3.0%).

The observed variations could be attributable to population, socio-demographic, technology, development and geographical differences with the other countries' result. When we came to the Ethiopian situation the observed variation could be due to strictly the period and population characteristics differences expressed with the factors identified in these researches. Moreover, the difference might be due to procedural difference, the level of consciousness, cultural and behavioral differences for the possible risk factors of HBV infection.

The prevalence of HBV infection was observed to be increased with age. The odds of being in the age category >= 25 years were two-fold in cases than non-cases (P=0.025). The finding goes with the findings in Pakistan Punjab AOR (1.82), Tanzania P=0.01 and Uganda while it doesn't go with the studies in Cameroon AOR (4.65), Nigeria 2.05 (19) in which lower ages were at higher risk than the higher age participants.

The sexual, behavioral and cultural practices of individuals are the major predisposing factors to hepatitis B and HIV virus infection. While the odds of having Hepatitis B Virus infection was two and half times more likely among mothers having multiple life time sexual partners than those with single sexual partner P=.025. This point agrees with the points presented at Cameroon AOR 2.26, Southern Nigeria AOR (3.99), Arbaminch-Ethiopia AOR (7.19) and an AOR of 5.04 North Ethiopia.

In this paper having history of (body tattooing / Scarification) was significantly associated with having HBV infection (HBsAg +), the study goes in line with the findings in Addis Ababa AOR (7.72), Bahir Dar AOR (5.07).

7. Conclusion and Recommendation

7.1. Conclusion

The result of this study brings to light the moderate infectivity rate of Hepatitis B virus infection among pregnant women of child bearing age in WkUSTH. In our study, predictors of HBV infection include multiple life time sexual partners, circumcision, induced abortion, scarification and age>=25 years. They were associated with increased prevalence of HBV infection in this study as demonstrated in the bivariate analysis.

Blood transfusion, past surgical history, body piercing with sharp objects, gravidity, parity, occupation and maritalstatus were not. If pregnant women are left undiagnosed and unmanaged, the future burden of the disease for health care resources and society will be substantial. The moderate prevalence of women positive HBsAg in the study population suggests that perinatal transmission of HBV might be the major mode of HBV transmission in this area in one aspect and the presence of association with greater number of sexual partners, body scarification, and home delivery were still the major aggravating factor for the community.

7.2Recommendation

- Health facility leaders should facilitate conditions to make the HBV infection screening as part of routine care at ANC service.
- Health facility leaders are supposed to develop plan to work with the risky sexual, behavioral and cultural practices in their respective catchment.
- Health workers should emphasize health information on safer sex to women of child bearing age to interrupt the transmission.
- Health workers needs to consider high index of suspicion in pregnant women with multiple sexual partner, having body tattooing and history of induced abortion. This category of women should be referred to facility with HBV screening access.

- The university's hospitalhas to support further studies to assess thoroughly the burden and determinants of MTCT of HBV in this setting
- Health workers should be conscious using sterilized materials and sites for safe abortion care.
- Molecular characterization and detection of the other HBV markers should be conducted to determine the exact prevalence of HBV in future study.

8. Strength and limitation of the study

8.1.Strength of the study

- It tries to cover adequate sample sizes & areas thathas no previous local studies.
- Responses were cross checked with different medical records of the participants.
- The HBsAg results of study subjects were also been checked register books and other data sources.

8.2.Limitation of the study

- Being retrospective study and not able to get most of the respondents directly as a primary source of information.
- The study was facility based this might have a selection bias (may not be representative) to pregnant mothers who were not seeking ANC at health facilities).

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10. Annex

Study information sheets,

Title of the research project: Prevalence and associated factors of HBV among pregnant women attending anti natal care in Wolkie university specialized teaching hospitals Wolike, Ethiopia 2023

Name of Principal investigator: Dr.Legesse Mitiku, Dr. Tseyon Fiseha, Dr. Zemawit Ashenafi, Dr. Leul Alemu (Medical interns)

Study focus Area: Infectious Disease

Name of the organization: Wolkite University College of Medicine and Health Sciences, Department of Public Health.

Total Cost of the project: It cost five thousand four hundred sixy five (***5,465)*** *ETB.*

Introduction: This information sheet and consent form is prepared for the selected study areas Wolkite University College of Medicine and Health Sciences. Aim of the form is to make the above concerned office clear about the purpose of the research work, data collection procedures and get permission to undertake the research.

Purpose of the research project: was to determine the prevalence and associated factors of Hepatitis B infection among pregnant women attending antenatal care clinics in Wolkite University Specialized Teaching Hospital, Wolkite, Ethiopia, 2023.

Procedure: A client was selected using simple random sampling techniques from the ANC attendants of the hospital the information was provided to the client and data were collected using medical records of the pregnant ladies and a pre tested semi-structured questionnaires. Moreover the records of the clients' were checked for consistencies.

Risk and/or Discomfort: there were no any major risks anticipated in the procedure but clients' information may not be adequately documented in the medical records.

Benefits and loss: Participating in the research have an indirect benefit for any one because it provided the necessary information on the status and factors associated of the disease so that the policy makers and program planners will use it in preparing evidence based plan to promote, prevent manage and control the disease. No loss was in forced in the health service usage of non-volunteers.

Confidentiality: To keep the confidentiality of clients' information the data was collected by properly trained data collectors. The information collected was kept strictly confidential and information reviewed about the patients by this study is stored in a file, without name i.e. Investigators use number codes to the record during the review. The data gathered were not accessible to anyone except the principal investigator. No descriptions of personal identifiers were used in the recording and result phase too. Finally the collected data were not used for purposes other than the research plan.

Person to contact: This research project proposal was reviewed and approved by the Department of public health of Wolkite University College of Medicine and Health Sciences. If in case you want to know more information about the research and its undertakings, you can contact us through the address below.

Dr. LegesseMitiku(Medical Intern) Principal investigator, Tell 0910883073

Dr. TseyonFiseha (Medical Intern) Principal investigator, Tell 0929050445

Dr. ZemawitAshenafi (Medical Intern) Principal investigator, Tell 0943333188

Dr. Leul Alemu (Medical Intern) Principal investigator, Tell 0910018410

Permission: Lastly but not least, respective bodies were kindly requested to permit and forward it's permission to concerned body in its organization so that the research team can get cooperation from the data clerks and other responsible bodies in place.

Consent Form (English Version)

My name is _____ _____. I belong to the research team studying the sero prevalence of hepatitis B virus infections and determinant factors among pregnant women who attended ANC clinics in Wolkite University Specialized teaching hospital. The study is being conducted by Graduating medical students (Dr. Tseyon Fiseha, Dr. Legesse Mitiku, Dr. Zemawit Ashenafi and Dr. Leul Alemu). The objective of this study is to determine the sero prevalence of HBV infection among pregnant women and associated factors. We kindly ask you to participate in this study and give me genuine answers for my queries. Your participation in this study is greatly helpful in identifying the status and risk factors in this area. The interview will take about 30 minutes and 5ml blood specimen will be collected from your upper arm with a needle brick and tested for HIV and HBV infections. Your name will not be written in this form and will never be used or mentioned in the report either. You will not get payment because of your participation in this study and will not lose any service rendered by health service providers.

All information given by you will be kept confidential and no one except the research team members will have access to the information. Your participation is completely voluntary and you are not obligated to answer any question you are not willing to respond. If you feel any discomfort with the question, it is your right to drop it at any time you want. You may even decide not to engage in this study from the very beginning. We hope we have clarified the purposes of the study. Are you willing to participate in this study?

1. Yes…….. Continue to the next page

2. No…… Skip to the next participant

Signature of interviewer----------

Date of data collection--------/--------/----------

(Signature of interviewer certifying that informed consent has been given verbally by respondent).

10.1. Questionnaires(English version)

Wolkite University College Medicine and health sciences, department of Public Health questionnaire to Prevalence and associated factors of hepatitis B virus infection among pregnant women visiting WkUSTH, Ethiopia 2023: a cross sectional study

001 Questionnaire ID ----------

002 Addresses: Zone ---------- Woreda ---------- Health Facility-------

Phone number ----------

Part I. Socio demographic characteristics of pregnant women in Addis Ababa, 2017			
No	Question	Response and Coding	Skip to
101	How old are you at your last birth day?	----------	
102	What is your current marital status?	Divorced --------- 1 Married -------- 2 Separated --------- 3 Never married -- 4 Widowed --------- 5	
103	What is your main occupation?	Employed -------- 1 Unemployed ---- 6 House wife ------ 2 Merchant ------- 3 Private work ----- 4 Student -------- 5 Other (Specify) ----------99	
104	What is your Family Setup?	Poly gamous -------1 Mono- gamous -- 2 Other (specify) ---- 99	
105	What is your Gravidity?	Primi-gravida ------ 1 Gravida II-----II Multi – gravida – 2	
106	What is your Parity?	Null- parity -------- 1 Multi- parity ------ 2	
107	What is your gestational week?	----------	
Part II. Knowledge of Respondents About HBV infections			
201	Did you heard about Liver disease?	Yes ---------- 1 No ---------- 2	If No go to 203
202	What was the source of information? (multiple response possible)	Mass Media -----1 Health facility -----2 School or and Reading Material ---------- 3 Other (specify) ----99	
203	Did you heard abou	Yes ---------- 1	If No go

	Hepatitis B?	No ---------- 2	to - 301
204	What was the source of information? (multiple response possible)	Mass Media -----1 Health facility -----2 School ---------- 3 Reading Material-- 4 Other (specify) ----99	
205	Is hepatitis B a virus?	Yes ----------1 No ----------2 I don't know ---3	
206	Can hepatitis B infection affect liver?	Yes ----------1 No ----------2 I don't know ---3	
207	Can HBV infection transmitted by unsterilized needle and sharp instruments?	Yes ----------1 No ----------2 I don't know ---3	
208	Can Hepatitis transmitted by infected blood and blood product?	Yes ----------1 No ----------2 I don't know ---3	
209	Can hepatitis transmitted by un safe sex?	Yes ----------1 No ----------2 I don't know ---3	
210	Can kissing transmit Hepatitis B infection?	Yes ----------1 No ----------2 I don't know ---3	
211	Can an infected pregnant mother transmit HBV to her fetus?	Yes ----------1 No ----------2 I don't know ---3	
212	Can a new born be infected after birth?	Yes ----------1 No ----------2 I don't know ---3	
213	Is there a possibility for an infected person to symptom free?	Yes ----------1 No ----------2 I don't know ---3	
214	Can HBV affect any person?	Yes ----------1 No ----------2 I don't know ---3	
215	Is HBV more infectious than HIV/AIDS?	Yes ----------1 No ----------2 I don't know ---3	
216	Can an infected person remain infected for life?	Yes ----------1 No ----------2 I don't know ---3	
217	Is hepatitis B curable?	Yes ----------1 No ----------2 I don't know ---3	
218	Is hepatitis B infection preventable?	Yes ----------1 No ----------2 I don't know ---3	If No go to - 301
219	How do you prevent it? (Optional)	Using Condom ---- 1 Safe injection --- 2 Avoiding scarification – 3 Other (Specify) ---------- 99	

220	Can hepatitis B is prevented by vaccination?	Yes ----------1 No ----------2 I don't know ---3	
Part III. Activity Related Risk factors			
301	Have you ever had history of Blood transfusion?	Yes -------1 No ------- 2	

302	Have you ever had history of surgery?	Yes -------1 No ------- 2	
303	Have you ever had history of tooth extraction?	Yes -------1 No ------- 2	
304	Have you ever had history of admission?	Yes -------1 No ------- 2	
305	Have you ever had history of scarification?	Yes -------1 No ------- 2	
306	Have you ever had history of body tattooing?	Yes -------1 No ------- 2	
307	Have you ever had history of Circumcision?	Yes -------1 No ------- 2	
308	Have you ever had history of induced Abortion?	Yes -------1 No ------- 2	
309	At what age did you first had sexual intercourse?	< =18 years of age – 1 >18 years of age --- 2	
310	How many people in total have you ever had sexual inter course in your life time?	< 5 --------- 1 5- 10 --------- 2 >10 ---------- 3	
311	Had you checked for HBV?	Yes -------1 No ------- 2	If No go to -319
312	What was your test Result?	Negative------1 Positive ----2 I don't know -3	
313	Do you know the HBV test result of your partner?	Yes -------1 No ------- 2	If No go to 321
314	If yes what was it	Negative -----1 Positive ------2	
315	Current HBV test Result	Negative -----1 Positive ------2	

316	Had you checked for HIV?	Yes -------1 No ------- 2	If N 324
317	What was your test Result?	Negative------1 Positive ----2 I don't know -3	
318	Current HIV test Result	Negative -----1 Positive ------2	
319	Do you know the HIV test result of your partner?	Yes -------1 No ------- 2	If No - 327
320	If yes what was it	Negative -----1 Positive ------2	
321	Did/Do/ you had/have/ history of contact with anyone having liver disease	Yes -------1 No ------- 2	
322	Did/Do/ you had/have/ history of contact with anyone having HIV infection	Yes -------1 No ------- 2	
323	Are you vaccinated for HBV?	Yes -------1 No ------- 2	If No - 331
324	If yes Number of dose	----------	
325	Site of previous Delivery/deliveries	No delivery --1 Health facility -2 Home delivery --3	

I Thank You Very Much!

10.2. ቃለ መጠይቅ የ አ ማ ር ኛ ት ር ጓ ሜ

ወ ል ቂ ጤ ዩ ኒ ቨ ር ሲ ቲ የ ህ ክ ም ና እ ና ጤ ና ሳ ይ ን ስ ኮ ሌ ጅ የ ህ ብ ረ ተ ሰ ብ ጤ ና ዲ ፓ ር ት ሜ ን ት የ ጉ በ ት በ ሽ ታ ደ ረ ጃ ና ተ ዛ ማ ጅ ጉ ዳ ዮ ች ን ለ ማ ጥ ና ት የ ተ ዘ ጋ ጀ 2015 ዓ .ም ፡ ፡

የ ጥ ና ቱ መ ረ ጃ ገ ጽ

ሥ ሜ----------ይ ባ ላ ል ፡ ፡

የ ጉ በ ት በ ሽ ታ ደ ረ ጃ ና ተ ዛ ማ ጅ ጉ ዳ ዮ ች ን የ እ ር ግ ዝ ና ከ ት ት ል በ ሚ ደ ር ጉ እ ር ጉ ዝ እ ና ቶ ች ላ ይ የ ሚ ያ ጠ ና ው ቡ ድ ን አ ባ ል ነ ኝ ፡ ፡
ጥ ና ቱ የ ሚ ካ ሄ ደ ው ወ ል ቂ ጤ ዩ ኒ ቨ ር ሲ ቲ የ ህ ክ ም ና እ ና ጤ ና ሳ ይ ን ስ ኮ ሌ ጅ የ ህ ብ ረ ተ ሰ ብ ጤ ና ዲ ፓ ር ት ሜ ን ት በ ተ መ ራ ቂ የ ህ ክ ም ና ተ ማ ሪ በ ሆ ኑ ት ዶ /ር ጽ ዮ ን ፍ ስ ሃ ፣ ዶ /ር ለ ገ ሰ ም ት ኩ ፣ ዶ /ር ዜ ማ ዊ ት አ ሸ ና ፊ እ ና ዶ /ር ል ዑ ል
አ ለ ሙ ሲ ሆ ን አ ላ ማ ው ም የ ጉ በ ት በ ሽ ታ ያ ለ በ ት ን ደ ረ ጃ እ ና ተ ዛ ማ ጅ ም ክ ኒ ያ ቶ ች ን ማ ወ ቅ ይ ሆ ና ል ፡ ፡
በ ት ህ ተ ና የ ም ጠ ይ ቅ ዎ ነ ገ ር የ ዚ ህ ጥ ና ት ተ ሳ ታ ፊ እ ን ዲ ሆ ኑ ና ተ ገ ቢ ው ን መ ል ስ እ ን ዲ ሰ ጡ ኝ ነ ወ ፡ ፡
የ እ ር ሶ ተ ሳ ት ፎ ለ ጥ ና ቱ ው ጤ ት እ ጅ ግ አ ስ ፈ ላ ጊ ነ ው፡ ፡ ጥ ና ቱ ወ ደ 30 ደ ቂ ቃ ብ ቻ ይ ወ ስ ዳ ል ፡ ፡
ሥ ም ዎ በ ዚ ህ ፎ ረ ም ላ ይ አ ይ ሞ ላ ም በ ሪ ፖ ረ ቱ ም አ ይ ገ ለ ጽ ም ፡ ፡
በ ዚ ህ ጥ ና ት ላ ይ በ መ ሳ ተ ፍ ዎ የ ሚ ከ ፈ ለ ዎ ት ባ ለ መ ሳ ተ ፍ ዎ የ ሚ ያ ጡ ት ም ን ም ነ ገ ር የ ለ ም ፡ ፡

የ ሚ ሰ ጡ ኝ መ ረ ጃ በ ሙ ሉ በ ጥ ን ቃ ቄ የ ሚ ያ ዝ ሲ ሆ ን ከ ጥ ና ቱ አ ባ ላ ት ው ጪ ማ ን ም ሊ ያ ገ ኘ ው አ ይ ች ል ም ፡ ፡
ተ ሳ ት ፎ ዎ ፍ ጹ ም በ ፈ ቃ ደ ኛ ነ ት ላ ይ የ ተ ሞ ረ ከ ዘ ሲ ሆ ን የ ት ኛ ው ን ም ጥ ያ ቄ እ ን ዲ መ ል ሱ አ ይ ገ ደ ዱ ም ፡ ፡
ያ ለ ተ መ ቸ ዎ ት ጥ ያ ቄ ካ ለ በ ፈ ለ ጉ ት ጊ ዜ ማ ቋ ረ ጥ ይ ች ላ ሉ ፡ ፡
ከ ነ ጭ ራ ሹ ን ው በ ዚ ህ ት ና ት ው ስ ጥ ያ ለ መ ሳ ተ ፍ ይ ች ላ ሉ ፡ ፡
የ ጥ ና ቱ ን አ ላ ማ በ ሚ ገ ባ የ ገ ለ ጽ ኩ ለ ዎ ት ይ መ ስ ለ ኛ ል ፡ ፡

በ ጥ ና ቱ ለ መ ሳ ተ ፍ ፈ ቃ ደ ኛ ነ ኝ -------

ወ ደ ሚ ቀ ጥ ለ ው ገ ጽ ተ ሻ ገ ር በ ጥ ና ቱ ለ መ ሳ ተ ፍ ፈ ቃ ደ ኛ አ ይ ደ ለ ሁ ም -------

ወ ደ ሚ ቀ ጥ ለ ው ተ ሳ ታ ፊ ተ ሻ ገ ር የ መ ረ ጃ ሰ ብ ሳ ቢ ው ፊ ር ማ ----------
--

መረጃ ውየ ተስበሰበበትቀን ----------

የ መረጃ ሰብሳቢ ውፊረ ማሙሉ የ ቃልፈ ቃደኝነ ትተሳ ታፊ ዎች መስ ጠታቸ ውን ያረጋ ግጣል ፡ ፡ ወልቂጤዩ ኒ ቨር ሲቲ የ ህ ክ ምና እ ና ጤና
ሳ ይን ስ ኮ ሌጅ የ ህ ብረ ተ ሰ ብ ጤና ዲ ፓር ት ሜን ት የ ጉ በ ት በ ሽ ታ ደ ረጃ ና ተ ዛ ማጅ ጉ ዳ ዮ ች ን ለ ማጥ ና ት የ ተ ዘ ጋ ጀ መ ጠ ይ ቅ

001 መ ለ ያ ቁ ት ር ----------

002 አ ድ ራ ሻ ፣ ዞ ን ---------- ወ ረ ዳ ----------
ጤ ና ድ ር ጅ ት ---ሥ ል ክ ቁ ጥ ር ----------

ክ ፍ ል I. ገ ላ ጭ ጥ ያ ቄ ዎ ች			
ተ /ቁ	ጥ ያ ቄ	አ ማ ራ ጭ መ ል ሶ ች ና መ ለ ያ አ ሰ ጣ ጥ	እ ለ ፍ
101	እ ደ ሜ ዎ ት /ሽ በ ሙ ሉ አ መ ት ስ ን ት ነ ው?	----------	
102	የ ጋ ብ ቻ ሁ ኔ ታ ?	ተ ፋ ት ቻ ለ ሁ ---------1 ያ ገ ባ -------- 2 ተ ለ ያ ይ ቻ ለ ሁ --------3 ያ ላ ገ ባ ች -- 4 ባ ል የ ሞ ተ ባ ት --------- 5	
103	ዋ ና ውስ ራ ሽ ምን ድን ነ ው?	ተ ቀ ጣ ሪ --------1 የ ቤ ት እ መ ቤ ት ---2 ነ ጋ ዴ ------- 3 የ ግ ል ስ ራ -----4 ተ ማ ሪ ---- 5 ስ ራ የ ለ ኝ ም ----6 ሌ ላ (ይ ገ ለ ጽ)----------99	
104	የ ቤ ተ ሰ ብ አ መ ሰ ራ ረ ት ሽ አ ን ዴ ት ነ ው?	ከ አ ን ድ በ ላ ይ -----1 አ ን ድ ብ ቻ --2 ሌ ላ (ይ ገ ለ ጽ)------ 99	
105	ስ ን ተ ኛ እ ር ግ ዝ ና ሽ ነ ው?	የ መ ጀ መ ሪ ያ ዬ ----1 ከ አ ን ድ በ ላ ይ ----2	
106	ሥ ን ቴ ወ ል ደ ሻ ል ?	ም ን ም -----1 አ ን ዴ --------2 ከ አ ን ዴ በ ላ ይ ------ 3	
107	የ ሥ ን ት ወ ር እ ር ጉ ዝ ነ ሽ	----------	
ክ ፍ ል II. የ ጉ በ ት በ ሽ ታ እ ውቀ ት ን የ ሚ ለ ኩ			
201	ስ ለ ጉ በ ት በ ሽ ታ ሰ ምተ ሽ ታ ውቂ ያ ለ ሽ ?	አ ዎ ----1 አ ይ ደ ለ ም ---2	ካ ል ሆ ነ 203

202	መረጃውን ያገኘሽውከየትነበር?	ከብዙሃንመገናኛ --------1 ከጤናባለሙያ -----2 ከትምህርት ቤት እና የተለዩነገሮችንበማን በብ -- ------3ሌላ (ይገለጽ)-------- ------99	
203	ስለሄፓታይተስቢሰምተሽታውቂየለሽ?	አዎ ----1 አይደለም---2	ካልሆነ 301
204	መረጃውን ያገኘሽውከየትነው?	ከብዙሃንመገናኛ --------1	

		ከጤናባለ ከትምህር የተለዩነ - 4 ሌላ (ይገ
205	ሄፓታይተስቢቫይረስነው?	አዎ -------- አላውቅ
206	ሄፓታይተስቢጉበትላይችግርያመጣይሆን?	አዎ -------- አላውቅ
207	ሄፓታይተስቢበሽታባልተቀቀለመርፌናስለታማበሆኑነገሮችይተላለፋል?	አዎ -------- አላውቅ
208	ሄፓታይተስቢበሽታበደምናየደምተዋጽኦበሆኑነገሮችይተላለፋል?	አዎ -------- አላውቅ
209	ሄፓታይተስቢበሽታጥንቃቄበጎደለውየግብረስጋግንኙነትይተላለፋልን?	አዎ -------- አላውቅ
210	ሄፓታይተስቢበሽታበመሳሳምይተላለፋልን?	አዎ -------- አላውቅ
211	ሄፓታይተስቢበሽታየተበከለችእናትወደልጇታስተላልፋለችን?	አዎ -------- አላውቅ
212	ህጻንከተወለደበኋላበጉበትበሽታሊበከልይችላልን?	አዎ -------- አላውቅ
213	በጉበትበሽታየተበከለሰውምልክቱንሳያሳይሊኖርይችላልን?	አዎ -------- አላውቅ
214	የጉበትበሽታማንኛውንምሰውሊያጠቃይችላልን?	አዎ -------- አላውቅ
215	የጉበትበሽታከኤችአይቪየበለጠተላላፊነውን?	አዎ -------- አላውቅ
216	በጉበትበሽታየተጠቃሰውበሽታውንእድሜልኩንሊያስተላልፍይችላልን?	አዎ -------- አላውቅ

217	የ ጉ በ ት በ ሽ ታ የ ሚድ ን ነ ውን ?	አ ዎ ------- አ ላ ውቅ ዎ
218	የ ጉ በ ት በ ሽ ታ ብ ክ ለ ት መ ከ ላ ከ ል የ ሚቻ ል ነ ውን ?	አ ዎ ------- አ ላ ውቅ ዎ
219	የ ጉ በ ት በ ሽ ታ ብ ክ ለ ት ን እ ን ዴ ት መ ከ ላ ከ ል ይ ቻ ላ ል ? (ብ ዙ መ ም ረ ጥ ይ ቻ ላ ል)	ኮ ን ዶ ም ነ ጹ ህ የ ያ ለ መ ነ ሌ ላ ካ ለ ይ
220	የ ጉ በ ት በ ሽ ታ በ ክ ት ባ ት መ ከ ላ ከ ል ይ ቻ ላ ል ን ?	አ ዎ ------- አ ላ ውቅ ዎ
ክ ፍ ል III. ተ ግ ባ ር ተ ኮ ር ጥ ያ ቄ ዎ ች		
301	ከ ዚ ህ ቀ ደ ም ደ ም ወ ስ ደ ሽ /ተ ቀ ብ ለ ሽ ታ ው ቂ ያ ለ ሽ ?	አ ዎ ----1

302	ከ ዚ ህ ቀ ደ ም ቀ ዶ ጥ ገ ና ተ ደ ር ጎ ል ሽ ታ ው ቂ ያ ለ ሽ ?	አ ዎ ----1 አ ይ ደ ለ ም ---2	
303	ከ ዚ ህ ቀ ደ ም ደ ም ጥ ር ስ ተ ነ ቅ ሎ ል ሽ ታ ው ቂ ያ ለ ሽ ?	አ ዎ ----1 አ ይ ደ ለ ም ---2	
304	ከ ዚ ህ ቀ ደ ም ሆ ስ ፒ ታ ል ተ ኝ ተ ሸ ታ ው ቂ ያ ለ ሽ ??	አ ዎ ----1 አ ይ ደ ለ ም ---2	
305	ከ ዚ ህ ቀ ደ ም ቆ ዳ ሽ ላ ይ ም ል ክ ት አ ሰ ር ተ ሸ ታ ው ቂ ያ ለ ሽ ??	አ ዎ ----1 አ ይ ደ ለ ም ---2	
306	ሰ ው ነ ት ሽ ላ ይ ተ ነ ቅ ሰ ሽ ታ ው ቂ ያ ለ ሽ ?	አ ዎ ----1 አ ይ ደ ለ ም ---2	
307	ጆ ሮ ሽ ን ተ በ ስ ተ ሸ ታ ው ቂ ያ ለ ሽ ?	አ ዎ ----1 አ ይ ደ ለ ም ---2	
308	አ ፍ ን ጫ ሽ ን ተ በ ስ ተ ሸ ታ ው ቂ ያ ለ ሽ ?	አ ዎ ----1 አ ይ ደ ለ ም ---2	
309	ተ ገ ር ዘ ሽ ታ ው ቂ ያ ለ ሽ ?	አ ዎ ----1 አ ይ ደ ለ ም ---2	
310	ጽ ን ስ አ ቋ ር ጠ ሽ ታ ው ቂ ያ ለ ሽ ?	አ ዎ ----1 አ ይ ደ ለ ም ---2	
311	የ መ ጀ መ ሪ ያ የ ግ ብ ረ ስ ጋ ግ ን ኙ ነ ት የ ደ ረ ሽ ው በ ስ ን ት አ መ ት ሽ ነ በ ር ?	< =18 አ መ ት – 1 >18 አ መ ት --- 2	
312	ባ ለ ፉ ት 12 ወ ራ ት ው ስ ጥ ከ ምን ያ ህ ል ሰ ው ጋ ር የ ግ ብ ረ ስ ጋ ግ ን ኑ ነ ት ፈ ጽ መ ሻ ል ?	< 3------- 1 3-6 ----- - 2 >7 ------ 3	
313	በ እ ድ ሜ ዎ ት ከ ምን ያ ህ ል ሰ ው ጋ ር የ ግ ብ ረ ስ ጋ ግ ን ኑ ነ ት ፈ ጽ መ ሻ ል ?	< 5 -----1 5-10 ---- -2 >10 ------ 3	

314	በ ግ ብ ረ ስ ጋ ግ ን ኙ ነ ት ጊ ዜ ኮ ነ ዶ ም ተ ጠ ቅ መ ሽ ታ ውቂ ያ ለ ሽ ?	አ ዎ ----1 አ ይ ደ ለ ም ---2	ካ ል ሆ 316
315	ም ን ያ ህ ል ጊ ዜ ት ጠ ቀ ሚ ነ በ ር ?	ሁ ሌ ም --- 1 አ ል ፎ አ ል ፎ - 2	
316	ተ ደ ጋ ጋ ሚ የ አ ባ ለ ዘ ር በ ሽ ታ ታ መ ሽ ታ ወ ቂ ያ ለ ሽ ?	አ ዎ ----1 አ ይ ደ ለ ም ---2	
317	የ ጉ በ ት በ ሽ ታ ም ር መ ራ አ ድ ር ገ ሽ ታ ውቂ ያ ለ ሽ ?	አ ዎ ----1 አ ይ ደ ለ ም ---2	ካ ል ሆ 319
318	ውጤቱ ም ን ነ በ ር ?	ነ ጻ -----1 የ ተ ጠ ቃ ---------2 አ ላ ው ቅ ም --------- -3	
319	የ ተ ጉ ዳ ኞ ን የ ጉ በ ት በ ሽ ታ ሁ ኔ ታ ታ ውቂ ያ ለ ሽ ?	አ ዎ ----1 አ ይ ደ ለ ም ---2	ካ ል ሆ 321
320	ከ ወ ቅ ሽ ውጤቱ ም ን ነ በ ር	ከ ህ መ መ ካ ጻ ------ ------1 በ ህ መ መ የ ተ ጠ ቃ ------2	
321	የ አ ሁ ን የ ጉ በ ት የ ደ ም ም ር መ ራ ውጤት	ከ ህ መ መ ካ ጻ ------ ------1 በ ህ መ መ የ ተ ጠ ቃ ------2	
322	የ ኤ ች አ ይ ቪ ም ር መ ራ አ ድ ር ገ ሽ ታ ውቂ ያ ለ ሽ ?	አ ዎ ----1 አ ይ ደ ለ ም ---2	ካ ል ሆ 324
323	ውጤቱ ም ን ነ በ ር ?	ነ ጻ -----1 የ ተ ጠ ቃ ---------- 2	
324	የ ተ ጉ ዳ ኞ ን የ ኤ ች አ ይ ቪ በ ሽ ታ ሁ ኔ ታ ታ ውቂ ያ ለ ሽ ?	አ ዎ ----1 አ ይ ደ ለ ም ---2	ካ ል ሆ 326
325	ውጤቱ ም ን ነ በ ር ?	ነ ጻ ------1 የ ተ ጠ ቃ ------2	
326	የ አ ሁ ን የ ኤ ች አ ይ ቪ የ ደ ም ም ር መ ራ ውጤት	ነ ጻ -------1 የ ተ ጠ ቃ ------2	
327	በ ጉ በ ት በ ሽ ታ ታ ማ ሚ ከ ሆ ነ ሰ ው ጋ ር ን ክ ኪ ኖ ሮ ዎ ት ያ ው ቃ ል ?	አ ዎ ----1 አ ይ ደ ለ ም ---2	

328	ከ ኤ ች አ ይ ቪ ታ ማ ሚ ጋ ራ ግ ን ኙ ነ ት ኖ ሮ ዎ ት ያ ውቃ ል ?	አ ዎ ----1 አ ይ ደ ለ ም ---2	
329	የ ጉ በ ት በ ሽ ታ ከ ት ባ ት ወ ስ ደ ውያ ውቃ ሉ ?	አ ዎ ----1 አ ይ ደ ለ ም ---2	ካ ል ሆ 330
330	ከ ወ ሰ ዱ ስ ን ት ዶ ዝ ወ ስ ደ ዋ ል ?	----------	
330	ከ ዚ ህ ቀ ደ ም የ ት ነ በ ር የ ወ ለ ዱ ት ?	ወ ል ጇ አ ላ ውቅ ም -----1 ጤ ና ድ ር ጅ ት -- 2 ቤ ት ----------3	

በ ጣ ም አ መ ሰ ግ ና ለ ሁ !

11. Declaration (assurance of investigator)

We the undersignedstudent, declare that this research result work is our original work in partial fulfillment of the requirement for the degree of medicine.

Name: Dr. LegesseMitiku,

Dr. TseyonFiseha,

Dr. ZemawitAshenafi and

Dr. Leul Alemu

Signature: _____

Place: Wolkite University College of Medicine and health sciences

Date of Submission: August 21, 2023

The research result work has been submitted for examination with my approval as a university advisor.
Name of Principal advisor: Dr. TemesgenTantu (MD, OBGYN)

Signature: _____ Date _____

Name of Co-advisor: Abate L. (Ass,Proff)

Mr. Abebe T.

Signature: _____ Date _____