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Assessing Pregnant Women General knowledge and awareness on HBV and HCV amongst pregnant women at the Bertoua Regional Hospital in the East Region of Cameroon

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ABSTRACT

Pregnant women with chronic Hepatitis B and positive Hepatitis B virus E antigen (HBeAg) have a 90% likelihood of transmitting the Hepatitis B virus to their newborns. Vertical transmission is the leading cause of HCV infection in children. Hepatitis B and C lead to chronic disease and are the most common cause of liver cirrhosis, liver cancer, and viral hepatitis-related deaths. A major challenge to eliminating viral Hepatitis can be lack of knowledge and awareness on HBV and HCV. This cross-sectional study at Bertoua Regional Hospital of Cameroon from (June 2025-January 2026) aimed at Assessing pregnant women attending the Maternity Unit for the antenatal care (ANC) visits at the Bertoua Regional Hospital on their knowledge and awareness on HBV and HCV. The majority of them (62%) were aged within (19-28). Out of the 400 pregnant women, (91.5%) had knowledge and awareness about Hepatitis, (26.25%) were able to define hepatitis as a viral infection, (28%) were able to define liver as the primary organ affect by hepatitis; only (38.5%) of them regularly attend their ANC and just (8.25%) actually receive HBV and HCV counselling about its risks on pregnancy. (74.25%) of the pregnant women think HBV vaccination during pregnancy is risky and (53.25%) think it is necessary to be screened from HBV/HCV during pregnancy. However, we have limited data assessing pregnant women knowledge and awareness on HBV or HVC across both community and healthcare settings, hence the need of this research. The findings align with the World Health Organization as well as others organisms fighting for the prevention and elimination of viral Hepatitis such as the Centre of Disease Control and Prevention.

Keywords: *Pregnant women, General knowledge, Awarness, HBV and HCV, Cameroon*

1. INTRODUCTION

Hepatitis is an inflammation of the liver caused by various infections viruses and non-infectious agents (Hepatitis internet 2025). The most frequent cause of Hepatitis is due to viral infection (Mehta, Reddivari 2022;)Hepatitis B and C can lead to chronic diseases and are the most common cause of liver cirrhosis, liver cancer and viral hepatitis-related deaths (Hepatitis internet 2025;), perinatal transmission accounts for more than 50% of cases of hepatitis B worldwide and it is also the leading cause of HCV infection in children (Asafo-Agyei et al; 2023), there are about two billion people living with HBV worldwide and about 360 000 chronic carriers (Frambo et al; 2014). The prevalence of HBV in Cameroon varies from one region to the other (Ronalou; 2015). A systematic review by (Mahamat et al; 2015) estimated that the prevalence of HBV in Cameroon was low with overall 2.3% at all ages. In 2021, the study of (Fadel et al; 2021) showed that only 15.61% of pregnant women in the Djoungolo Health District have been screened for viral hepatitis.

Hepatitis C virus may be one of the common infections among pregnant women in Cameroon and worldwide, approximately 8% of pregnant women have HCV infection with the prevalence being as high as 4% in the USA (Bigna JJ et al; 2029). According to the US Centers Disease of control and prevention, the estimated 23 000-46 000 children in the USA live with HCV. In Cameroon, a 2025 study by (Ndembi et al; 2025) showed a 4% HCV prevalence in the 3rd trimester pregnancy. Still in Cameroon, in a study investigating HIV, HBV or HCV general knowledge of HBV among pregnant women in Cameroon is low to moderate with significant gap in understanding transmission and prevention despite high endemicity (often greater than 10%), studies show poor awareness of vaccination and vertical transmission risks with many relying on in correct knowledge (Andrea et al; 2022) investigated knowledge, risk factors and prevalence in the Loum Health District highlighting significant knowledge gaps in Hepatitis prevention. An effective vaccination program is vital for preventing HBV infection, MTCT can be prevented by routine screening of mothers and administering post-exposures prophylaxis to all infants born to infected mothers (Santsangi et al; 2016); like hepatitis B, there is no currently effective vaccine against Hepatitis C (Hepatitis internet 2025); a major challenge in eliminating viral hepatitis can be lack of awareness regarding the infection, here the study was undertaken with the aim to assess the knowledge and awareness regarding Hepatitis B and C infections among pregnant women attending the Maternity Unit for antenatal care visits at the Bertoua Regional Hospital, in other words, what is the level of knowledge and awareness of pregnant women on both viral Hepatitis B and C?.

2. RELATED WORKS

In a previous study of (Ngwanjoh et al; 2022), among pregnant women in the Loum Health District, the results showed that pregnant women had inadequate knowledge on HBV infection, the prevalence of HBsAg was (9%) with only one third of participants having adequate knowledge although hepatitis B is recognized to be one of the major health problem, pregnant women in the Loum Health District were less aware of its mode of transmission, consequences and prevention.

In another previous study of (Andreas et al; 2025) in the Buea Health District in Cameroon, the results showed that the hepatitis B

knowledge summary scores ranged from 0 to 12, Knowledge of HBV among pregnant women was poor. In another study of (Yankam et al; 2019), in the Limbe and Muyuka Health District of the South West region of Cameroon, pregnant women demonstrated poor knowledge and adopted poor practices regarding the modes of transmission and prevention of HBV infection.

In a study of (Singh et al; 2025), the results showed that among the interviewed pregnant women, only 47 (11.1%) were aware of either hepatitis B or both Hepatitis B and C, and among these, only (19.1%) had adequate knowledge.

3. MATERIALS & METHODS

Inclusion criteria were Pregnant women aged of 19 years and above (58) who freely consented, and came for antenatal care visit at the maternity unit of the BRH, and had not been vaccinated against HBVwithin the study period; as well, the study excluded pregnant women less than 19 years and non-pregnant women. Those of them who had receive HBV vaccine at the period of the study were also excluded. The prospective health facility-based study setting was chosen because of the required study population of pregnant women who register for regular antenatal care visits. Moreover, data collected at a specific point in time was deemed adequate to establish a diagnosis of HBV virus, hence, justifying the choice of a cross-sectional study design, this is because testing for Hepatitis B and C virus has been made a routine test for all the pregnant women on their antenatal care visit at the Bertoua Regional Hospital and actually were free of charge during the study. A total of 400 pregnant women were consecutively sampled (non-probabilistic) registered for their visit during the study period and all were approached with a request and signed the informed consent to take part in the study, all of them gave their consent to participate in the study and they were consecutively enrolled to the study.

Participants were assigned codes for anonymity purposes, we used for HBV screening Diaspot HBsAg, these are step Hepatitis B Surface Antigen (HBsAg) test strip package insert and for HCV, Diaspot HCV virus anti-body (HCV-Ab) test strips. Those are immune-chromatographic strips for qualitative detection of antibodies and antigens. Their sensitivity and specificity are above 99% and 98% respectively. Results were disclosed to participants with proper counselling; all infected pregnant women were counselled on the disease and referred for proper specialization care while the non-infected were counselled for HBV vaccination. Data were obtained using a well-structured questionnaire which was designed for the research and for laboratory analysis; questions elicited data to cover the objectives of the study, the questionnaire included seven sections, each focusing on a particular aspect to answer the research questions and gaps as well. The quantitative part of the questionnaire featured MCQ and Likert-scale questions allowing participant to rate their experiences, knowledge, feelings and attitudes. The questionnaires also included open-ended questions inviting participants to give other factors not mentioned. Frequencies (sums and percentages) were calculated for the socio-demographic factors and the different attitudes, feelings and practices towards HBV and HCV.

Tables displaying the frequency distribution for knowledge, attitude and practice towards HBV and HCV were entered into graph, each of the tables had frequencies for knowledge, maternal HBV/HCV preventive modes and practices, modes of transmission. Data were analyzed

using Excel 2016 frequencies and percentages were determined.

4. RESULTS & DISCUSSION

[See Annex — Table 1: Socio-demographic information amongst pregnant women attending ANC]

The results showed that the majority of pregnant women (62%) were aged within the framed age (19-28), most of them (59.5%) were single, (32.5%) of the pregnant women had no formal education, while (38.75%) of them were housewives, (89.5%) were Christian and more than half (76.25%) were multigravida that is they were pregnant more than once.

[See Annex — Table 2: Pregnant women general knowledge and awareness on HBV/HCV]

Out of the 400 pregnant women, (91.5%) had knowledge and awareness about Hepatitis, also, (24.75%) of the pregnant women said Hepatitis was asymptomatic and (33.75%) of them said Hepatitis was actually curable. only (38.5%) of the pregnant women regularly attend their ANC; while (8.25%) actually receive HBV and HCV counselling about Hepatitis risks on pregnancy.

[See Annex — Table 3: Hepatitis B and C Definition percentage]

Out of the 400 pregnant women, only (26.25%) were able to define hepatitis as a viral infection, (12.5%) defined it as a drug and (61?25%) defined it as a disease, (28%) were all the same able to define liver as the primary organ affect by hepatitis. Against (19%) who said Heart, (20%) lungs, (24.5%) stomach, (8.5%) actually didn't know.

[See Annex — Table 4: HBV Counselling and screening]

Out of the results, (13.25%) of the pregnant women were misinformed about HBV counselling at antenatal classes, against (43%) who said it doesn't exist and (5.25%) didn't know

Also, (53.25%) of them affirmed that Hepatitis is necessary during pregnancy against (23.75%) who affirmed it was not necessary and (23%) who had no such idea.

Out of our results, we found that (91.5%) of the interviewed pregnant women had awareness and were knowledgeable about Hepatitis, this study actually has a higher rate of awareness than in the study of (Junior et al; 2021) in which only (6.8%) of the respondents had knowledge of HBV. Again, in our results, (26.25%) of the pregnant women were able to define hepatitis as a viral infection, whereas, in the study of (Frambo et al; 2029), 80% of the participants did not know that Hepatitis B was a virus, (28%) of the pregnant women out of our results were able to define liver as a primary organ affected by Hepatitis, whereas only (15.9%) of the participants in the study of (Frambo et al; 2014) knew that infection with Hepatitis virus affects the liver as the primary organ.

In the study of (Junior et al; 2021) the results showed that during antenatal care, health education topics include HIV infections, malaria and nutrition for pregnant women, whereas from our observations and out of some of the pregnant women answers, HBV and HCV are not included at the maternity unit of the Bertoua Regional Hospital. , this could explain why midwives and nurses committed to ANC may exhibit limited knowledge of HBV and HCV, this goes in the same line with our results which showed that only (38.25%) of the pregnant women attended the ANC and just (8.25%) actually receive HBV and HCV counselling about risks on pregnancy (Junior et al; 2021), only one three pregnant women were reported having been tested, while in our study, (53.25%) of the pregnant women said screening from HBV and HCV during pregnancy is necessary.

5. CONCLUSION

Hepatitis B and HCV infections do really exist among pregnant women in the East region and these women exhibit very limited knowledge, that is their knowledge and awareness on Hepatitis are more superficial on these infections; awareness campaigns must be launched to inform women about the importance of screening and the availability of services at the Bertoua Regional Hospital. In addition, steps must be taken to make screenings service more accessible notably by reducing financial barriers, also the midwives have to organize antenatal classes for HBV and HCV counselling among pregnant women especially for those of them having a positive status of either one of them or both viruses, so as to promote prevention against vertical transmission.

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CONFLICTS OF INTEREST

The authors declare no conflict of interest in relation to this work.

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ANNEXES

Annex I — Table 1: Socio-demographic information amongst pregnant women attending ANC

Variables					
Age	(19-28)	(29-38)	(39-48)	(49-58)	-
n	248	82	62	8	-
%	62%	20.5%	15.5%	2%	-
Marital status	Single	Married	Divorced	Widow	-
n	238	112	33	17	
%	59.5%	28%	8.25%	4.25%	-
Education level	No formal education	Primary school	Secondary school	College	Postgraduate
n	130	122	84	49	15
%	32.5%	30.5%	21%	12.25%	3.75%
Occupation	Housewife	Business	Framing	Government employed	-
n	155	135	68	42	-
%	38.75%	33.75%	17%	19.5%	-
Religion	Christian	Muslim	_	_	-
n	358	42	-	-	-
%	89.5%	10.5%	-	-	-
Gravidity and parity	First pregnancy	More than one pregnancy	-	-	-
n	95	305	-	-	-
%	23.75%	76.25%also,	-	-	-

Annex II — Table 2 : Pregnant women general knowledge and awareness on HBV/HCV

Variables	Yes		No		I don't know	
	n	%	n	%	n	%
HBV/HCV knowledge and awareness	366	91.5%	34	8.5%	0	0%
Asymptomatic Hepatitis	99	24.75%	287	71.75%	0	0%
Curability of Hepatitis	12	33.75%	257	64.25%	14	3.5%
Pregnant women ANC attendance	154	38.75%	246	61.5%	0	0%
HBV/HCV Counselling	33	8.25%	121	30.25%	0	0%

Annex III — Table 3 : Hepatitis B and C Definition percentage

Variables	Drug		Disease		Viral infection					
Hepatitis B and C definition	n	%	n	%	n	%	-		-	
	50	12.5%	245	61.25%	105	26.25%	-		-	
							-		-	
Hepatitis organs	Heartn	%	Lungsn	%	Stomachn	%	Livern	%	I don't known	%
	76	19%	80	20%	98	24.5%	112	28%	34	8.5%

Annex IV — Table 4: HBV Counselling and screening

Variables	Misinformation		Doesn’t exist		I don't know	
Counselling on HBV/HCV	n	%	n	%	n	%
	172	13.25%	53	43%	21	5.25%
Hepatitis Screening	Necessary		Unnecessary		I don't know	
	n	%	n	%	n	%
	213	53.25%	95	23.75%	92	23%