

**Table 1 Socio-demographic characteristics distribution among pregnant women attending Tirunesh Beijing Hospital, 2014, Addis Ababa, Ethiopia**

Socio-demographic Variables	Frequency	
	Number (n)	Percent (%)
Residence		
Urban	205	95.3
Rural	10	4.7
Age (median = 26 years)		
15–19	9	4.2
20–24	67	31.2
25–29	100	46.5
30–34	31	14.4
35–39	8	3.7
Stage of pregnancy		
First trimester	10	4.7
Second trimester	17	7.9
Third trimester	188	87.4
Educational status		
Illiterate	40	18.6
Primary school	84	39.1
Secondary school	55	25.6
Certificate and diploma	24	11.2
Degree and above	12	5.6
Occupational status		
House wife	129	60
Government organization	19	8.8
Private organization	41	19.1
Merchant	9	4.2
Farmer	9	4.2
Student	3	1.4
Others	5	2.3

trend of higher seropositivity for HBV infection among older age groups (between 35 and 39 years) 2 (25 %) compared to the other age groups: 11.1 % among (15–19 years), 4.5 % among (20–24 years), 6 % among (25–29 years), and 3.2 % among (30–34 years). The level of literacy in the majority of the positive cases was low; 8 (9.5 %) were from a primary school level. Of the total, 9 (4.19 %) participants were HIV positive and prevalence of HIV/HBV co-infection was 22.2 % (two HBV positive cases out of nine HIV positive cases).

A multivariate analysis of different variables indicated that those having a history of abortion had a 19 times more chance of positivity for HBsAg than those without [AOR = 19 (CI 2.78–130.367);  $p = 0.003$ ]. Similarly, those with a history of previous surgery had a 9.8 times more chance of positivity for HBsAg compared to their counterparts [AOR = 9.8 (CI 1.392–69.610);  $p = 0.022$ ]. Moreover, the odds of having HBsAg positivity was 7.7

times more likely among those who were with experience of tattoo [OR = 7.7 (CI 1.185–50.28);  $p = 0.033$ ]. Except abortion, surgery, and tattoo, other risk factors included in the study had not showed statistically significant association ( $p > 0.05$ ) with the HBsAg positivity. HBV prevalence and association with risk factors are shown in Table 2.

## Discussion

The present study will contribute to the understanding of the current burden of HBV among pregnant mothers attending antenatal clinics. In addition, it will significantly contribute to providing insights to the current practice of HBV vaccination in newborns in Ethiopia as newborns are given the vaccine without screening. Therefore, the findings of this study will provide insights for policy makers to implement the routine practice of screening and immunization of pregnant mothers during their antenatal visits.

Screening apparently healthy pregnant women does have a paramount importance from the perspective of particular disease investigation, diagnosis, and implementation evidence-based medical intervention for chronic HBV infection. Especially, this should be given due emphasis in pregnant women so as to prevent the transmission of HBV to their new born [19].

In agreement with World Health Organization (WHO) grouping, the prevalence of HBV (6 %) was intermediate (2–7 %) [20]. The finding was higher than research report from Jimma (3.7 %), Addis Ababa (3 %), and Bahir Dar (3.8 %), Ethiopia [10, 16, 17]. In comparison with other countries, it was turned out to be higher than a study from Turkey (2.8 %) [21], India (0.9 %) [22], and Libya (1.5 %) [23]. In contrast, it was lower than the study documented in Taiwan (15.5 %) [24] and Gondar in Ethiopia (7.3 %) [12]. These differences might be attributable to socio-demographic characteristics, cultural and behavioral differences for the risk factors of HBV infection, methodological difference, and the obvious natural difference linked with various geographical situations.

HBsAg sero-status was comparable with research reports from Debre Tabor (North West) (5.3 %) [25] and Niger (5.6 %) [26]. The explanation for this could be because we have engaged the same risk groups. In addition, this similarity would be justified by the test method principle similarity employed to investigate HBsAg.

According to previous epidemiological studies, there has been a link between age and the acquisition of HBsAg that indicates, the age of acquiring the infection as one of the major determinant factors for HBsAg positivity [27]. In our study, higher prevalence was observed in the age groups greater than 25 years in agreement with study from Addis Ababa Ethiopia ( $p > 0.05$ ) [14] and China