www.idosr.org
©IDOSR PUBLICATIONS
Muthegheki, 2024
ISSN: 2579-0781
International Digital Organization for Scientific Research
IDOSR JOURNAL OF EXPERIMENTAL SCIENCES 10(1): 69-81, 2024.
https://doi.org/10.59298/IDOSR/JES/101.6981.1824
IDOSRJES101.6981.24

Prevalence and Risk Factors Associated with Chronic Hepatitis B Among Patients Attending Fort Portal Regional Referral Hospital in Kabarole District, Western Uganda

Muthegheki Godwin

Faculty of Clinical Medicine and Dentistry, Kampala International University Western Campus Uganda.

ABSTRACT

Viral hepatitis was a major public health problem in need of an urgent response. An estimated 257 million people were living with chronic HBV infection. This study sought to determine the Prevalence and Risk Factors Associated with Chronic Hepatitis B among Patients Attending Fort Portal Regional Referral Hospital in Kabarole District, Western Uganda. Data was coded and entered into Epi info version 7, then exported into SPSS version 22.0 for analysis. Descriptive statistics was used to summarize the variables. Bivariate and multivariate logistic regression analyses were computed to determine risk factors associated with HBsAg seropositivity. AOR with corresponding 95% CI were computed to see the strength of the association and a p-value of < 0.05 was considered statistically significant. 112 eligible adults comprising 48 (42.9%) males and 64 (57.1%) females participated in the study. The mean age of the participants was 31.6 years [SD ±7.2]. Half of the study respondents, 56 (50.0%) were in the age range of 25–34 years. The overall prevalence of HBV infection among adults in the community was 7.14%. Based on a bivariate logistic regression analysis, being male, residing in an urban setting, having a primary education, being married, operating a business or being self-employed, living in a family of five or more members, body piercing, history of hospitalization, extraction of teeth at a dental facility, history of circumcision, drinking alcohol, unprotected sexual behaviour and sharing of sharp personal items had a significant association with the seroprevalence of HBsAg in patients at FRRH. However when the model was adjusted to cater for possible confounders in a multivariate logistic regression analysis, being male [p=0.008], residing in an urban setting [p=<0.001], operating a business or being self-employed [p=0.001], living in a family of five or more members [p=0.028], body piercing [p=<0.001], drinking alcohol [p=0.006], unprotected sexual behaviour [p=0.001] and sharing of sharp personal items [p=0.028] remained significantly associated with seroprevalence of HBsAg in patients at FRRH. The prevalence of Hepatitis B virus amongst patients at FRRH IS 7.14%. Socio-demographic variables including gender, place of residence, occupation, and staying in a family of 5 or more members in a household showed significant association with HBsAg seropositivity. Body piercing, alcohol drinking habits, unprotected sexual behaviour and sharing of sharp personal items were risk factors for HBsAg seropositivity among patients attending FRRH.

Keywords: Patients, Hepatitis, HBsAg seroprevalence, Drinking alcohol, Unprotected sexual behaviour.

INTRODUCTION

Hepatitis B infection is caused by the hepatitis B virus (HBV), an enveloped Deoxyribonucleic acid (DNA) virus that infects the liver, causing hepatocellular necrosis and inflammation. HBV infection can be either acute or chronic, and the associated illness ranges in severity from asymptomatic to symptomatic, progressive disease [1, 2]. Chronic hepatitis B (CHB) – defined as the persistence of hepatitis B surface antigen (HBsAg) for six months or more – is a major public health problem [1, 3, 4].

Worldwide, there are an estimated 240 million chronically infected persons, particularly in low- and middle-income countries (LMICs). The major complications of CHB are cirrhosis and hepatocellular carcinoma (HCC). Between 20% and 30% of those who become chronically infected will develop these complications, and an estimated 650,000 people will die annually due to CHB. The majority of people are unaware of their HBV infection, and therefore often present with advanced disease [1] (World Health Organization WHO, 2017) More than 2 billion people worldwide are estimated to have had hepatitis B virus (HBV) infection and 350 million chronic carriers of the virus are at high risk of cirrhosis of the liver and primary liver cancer [5]. HBV accounts for an estimated500, 000-700,000 annual deaths worldwide [1]. The public health burden of HBV infection in Uganda is unknown, although the country has long been considered to be among the highly endemic countries of sub-Saharan Africa, with more than 8% of the population expected to harbour chronic infection [5, 1]. Hepatitis is the inflammation of the liver from any cause. Hepatitis commonly results from a virus, particularly one of the five hepatitis viruses – A, B, C, D or E [6, 7, 8]. Less commonly, hepatitis results from other viral infections, such as infectious mononucleosis, yellow fever, and cytomegalovirus infection and if it's not controlled it causes vomiting, fever, dehydration, nausea, poor appetite and death [8]. It's mostly the infection of the digestive system especially the liver caused by viral family [8, 9]. Most cases of hepatocellular carcinoma (HCC) are associated with cirrhosis related to chronic hepatitis virus. Changes in the time trends of HCC and most variations in its age-, sex-, and race-specific rates among different regions are likely to be related to differences in hepatitis viruses that are most prevalent in a population, the timing of their spread, and the ages of the individuals the viruses infect [10]. Environmental host, genetic, and viral factors can affect the risk of HCC in individuals with HBV or HCV infection [11]. All children born to infected mothers should be tested for hepatitis B. The progression to liver damage in infected children is slow [12]. However, in the perspective of 15-20 years of infection or the presence of other risk factors, such as concomitant chronic disease, a progression to more severe liver damage can be seen [12]. Thus, the use of antiviral treatment may be of importance. Treatment combinations of Tenofovir and Encetavir seem to be at least as effective in children as in adults [12].

Statement of Problem

In 2015, combating viral hepatitis by 2030 was included in the Sustainable Development Goals [13]. Then, in 2016, the World Health Assembly passed the Global Health Sector Strategy on Viral Hepatitis, which aims to eliminate HBV and HCV by 2030 [14]. The targets include 90% global coverage of three-dose infant vaccination by 2020; timely birth-dose vaccination in 50% of infants by 2020, and in 90% by 2030; and prevalence in children aged 5 years of 1% by 2020, and 0·1% by 2030. Reduction of incidence among infants is important because most HBV infections in infants become chronic, which is the leading source of new chronic HBV infections. As well as the prevention targets, the 2030 targets include the diagnosis of 90% of people infected with HBV and antiviral treatment of 80% of those diagnosed and eligible for treatment [15]. Viral hepatitis B is among the major diseases of public problems worldwide, especially in developing countries analyzed [16]. In the Kabarole district, public health officers in collaboration with the municipal council had taken into consideration the increasing number of patients who are seeking medical services due to viral infections. However, there is very minimal information about viral Hepatitis in the Kabarole district, hence this study to determine the prevalence and risk factors associated with chronic Hepatitis B among patients attending Fortportal Regional Referral Hospital (FRRH). Therefore, this work will determine the prevalence and risk factors associated with hepatitis B infection among patients attending Fortportal Regional Referral Hospital in Kabarole District in Western Uganda.

METHODOLOGY

Area of Study

The study was conducted at Fortportal Regional Referral Hospital. Fortportal Regional Referral Hospital is a public Hospital located within the city of Fort Portal, approximately 294 kilometres (183 mi) from Kampala, Uganda's capital and largest city. The coordinates of the hospital are latitude:0.655278; longitude;30. 281389. The hospital operates an estimated 333-bed space under four distinct departments namely General Surgery, Orthopedics, Obstetrics and Gynecology, and Internal Medicine.

Study design

A cross-sectional study design was utilized to achieve the objectives of the study.

Sampling method

The convenience sampling method was used to obtain participants in the study considering the eligibility criteria. All willing patients attending FRRH during the period of data collection that met the eligibility criteria were considered in the sample.

Inclusion criteria

All willing adult (18 years and above) patients attending Fortportal Regional Referral Hospital.

Exclusion criteria

- All patients attending Fort Portal Regional Referral Hospital for psychotic-related conditions.
- Patients who could not respond on their own (in critical conditions)

Sample size determination.

The sampling size was calculated by the use of the [17] formula

$$N=\frac{Z^2PQ}{D^2}$$

Where;

N-desired sample size, Z-standard normal deviation taken as 1.96 at a confidential level of 95%,

P-proportion of the target population, estimated to have similar characteristics (where 50% is used if no measurable estimate or 0.5),

Q-is standardized =1.0 – P; where P is 0.5,

Therefore,

Q was; 1.0-0.5=0.5 or 50% D-degree of error =0.05 or 5% *Calculation:*

The confidential level was, 79% Degree of error was, 10% On substitution; If 95% gives 1.96 (standard deviation)

79% gives (79×1.96) ÷95=1.63 thus my deviation Degree of error 10/100=0.1.

Thus;

$N= (1.632\times0.5\times0.5) \div 0.1^2=100$ respondents.

10% of the sample size was considered for non-response giving a total sample size of 112 respondents.

Data collection

Data will be collected using a thematic two-part questionnaire that was designed to capture the socio-demographic characteristics, risk factors and hepatitis B incidents.

Data Processing and Analysis

Questionnaire tools were checked for their accuracy and data completeness, then data was coded and entered into Epi info version 7, then exported into SPSS version 22.0 for analysis. Descriptive statistics was used to summarize the variables. Figures and tables were used to summarize the frequencies and percentages of the variables. Bivariate and multivariate logistic regression analyses were computed to determine risk factors associated with HBsAg seropositivity. Variables with a p-value of < 0.2 during a bivariate analysis were incorporated in a multivariate logistic regression model to control for confounding. Adjusted odds ratio (AOR) with a corresponding 95% confidence interval (CI) was computed to see the strength of the association and a p-value of < 0.05 was considered statistically significant. Hosmer and Lemeshow's test was utilized to test the goodness-of-fit of the final logistic regression model and provided a p-value of 0.35.

Quality control

The questionnaire was pretested amongst selected willing patients at Kampala International University Teaching Hospital before the actual data collection. The collected data was checked immediately after finalizing the questionnaire for completeness and consistency of the information collected.

Ethical considerations

Ethical approval was sought from Kampala International University Western Campus Faculty of Clinical Medicine and Dentistry and an introduction letter was given after to seek permission for data collection. Written and verbal consent was sought from the respondents before they were recruited into the study [18].

RESULTS

Socio-demographic Characteristics of the Respondents

A total of 112 eligible adults comprising 48 (42.9%) males and 64 (57.1%) females participated in the study. The mean age of the participants was 31.6 years [SD ±7.2]. Half of the study respondents, 56 (50.0%) were in the age range of 25–34 years. The majority 81 (72.3%) of the respondents were rural residents. The majority of the study participants had attained a formal primary education, 51 (45.6%), and were peasant farmers 55 (49.1%) mainly coming from a family of five or more people 90 (80.4%) as shown in

Table 1.

Table 1: Socio-demographic Characteristics of patients attending FRRH (N = 112)

Characteristics	Category	Frequency (N = 112)	Percentage (%)
Gender	Male	48	42.9
	Female	64	57.1
Residence	Urban	31	27.7
	Rural	81	72.3
Age	18–24	16	14.3
	25–34	56	50.0
	35–44	31	27.7
	≥45	9	8.0
Marital status	Married/ Living with a partner	69	61.6
	Single	20	17.9
	Separated	23	20.5
Educational status	No formal Education	19	17.0
	Primary	51	45.6
	Secondary	29	25.8
	Tertiary	13	11.6
Occupational status	No income work	31	27.8
	Peasant farming	55	49.1
	Business/Self employed	15	13.4
	Gov't employee	11	9.7
Family size	≤2	7	6.2
	3–4	15	13.4
	≥5	90	80.4

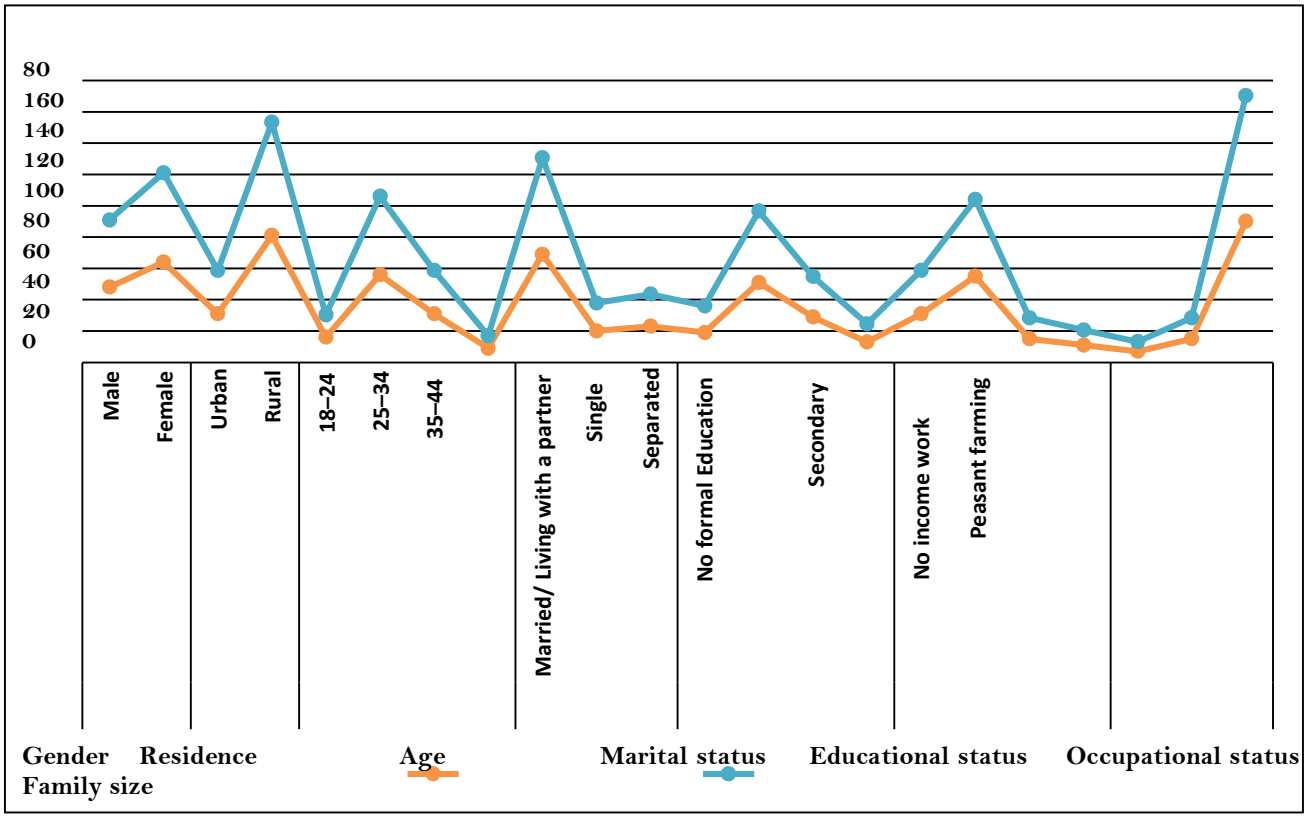

Figure 1: Stacked line graph showing socio-demographic Characteristics of patients attending socio-demographic characteristics of patients at FRRH

Prevalence of HBV Infection

The overall prevalence of HBV infection among adults in the community was 7.14%. Of the total HBV-infected participants, 6 (75.0%) were male and 2 (25.0%) were female. The majority of the HBV seropositive stayed in the urban setting accounting for 87.5%, aged between 25–34 years representing 62.5%, mostly married accounting for 75.0%, with a secondary level education 37.5%, operating a business or self-employed 62.5% and living in a family of five or more members 87.5% as shown in Table 2 and Figure 3.

Table 2: Distribution of HBsAg Seroprevalence with Socio-Demographic Characteristics of Patients at FRRH

Characteristics	Category	Frequency (N = 112)	Negative		Positive	
			n	(%)	n	(%)
Gender	Male	48	42	40.1	6	75.0
	Female	64	62	59.6	2	25.0
Residence	Urban	31	24	23.1	7	87.5
	Rural	81	80	76.9	1	12.5
Age	18–24	16	16	15.4	0	0
	25–34	56	51	49.0	5	62.5
	35–44	31	30	28.8	1	12.5
	≥45	9	7	6.8	2	25.0
Marital status	Married/ Living with a partner	69	63	60.6	6	75.0
	Single	20	19	18.3	1	12.5
	Separated	23	22	21.1	1	12.5
Educational status	No formal Education	19	17	16.3	2	25.0
	Primary	51	50	48.1	1	12.5
	Secondary	29	26	25.0	3	37.5
	Tertiary	13	12	11.6	1	12.5
Occupational status	No income work	31	30	28.9	1	12.5
	Peasant farming	55	54	51.9	1	12.5
	Business/Self employed	15	10	9.6	5	62.5
	Gov't employee	11	10	9.6	1	12.5
Family size	≤2	7	7	6.7	0	0
	3–4	15	14	13.5	1	12.5
	≥5	90	83	79.8	7	87.5

Risk Factors of Hepatitis B Virus Infection among patients attending FRRH

Based on a bivariate logistic regression analysis, being male [COR=12.1, 95% CI (3.5 - 30.4)], residing in an urban setting [COR= 9.2, 95% CI (2.0 - 25.5)], having a primary education [COR=1.1, 95% CI = (0.6–2.0)], being married [COR= 2.1, 95% CI (1.1 – 3.8)], operating a business or being self-employed [COR= 1.1, 95% CI (0.6–2.1)], living in a family of five or more members [COR=3.4, 95% CI (1.4 - 7.4)], body piercing [COR=1.2, 95% CI (0.8–6.5)], history of hospitalization [COR=1.1, 95% CI (0.5–3.8)], extraction of teeth at a dental facility [COR=2.0, 95% CI (1.8–7.6)], history of circumcision [COR=0.6, 95% CI (1.1–5.5)], drinking alcohol [COR=1.0, 95% CI (0.4–3.0)], unprotected sexual behaviour [COR=1.4, 95% CI (0.6–3.8)] and sharing of sharp personal items [COR=1.1, 95% CI (0.6–2.1)] were found to be significantly associated with the seroprevalence of HBsAg in patients at FRRH as shown in Table 3&4. However, when the model was adjusted to cater for possible confounders in a multivariate logistic regression analysis, being male [AOR=3.5, 95% CI (1.0 – 20.6), p=0.008], residing in an urban [AOR= 4.0, 95% CI (1.8 – 18.5), p=<0.001], operating a business or being self-employed [AOR= 0.7, 95% CI (0. 3–1.7), p=0.001], living in a family of five or more members [AOR= 5.8, 95% CI (2.2-22.6), p=0.028], body piercing [AOR=2.2, 95% CI (1.1 – 9.5), p=<0.001], drinking alcohol [AOR=8.0, 95% CI (3.9–21.1), p=0.006], unprotected sexual behavior [AOR=7.4, 95% CI (1.8–54.2), p=0.001] and sharing of sharp personal items [AOR=4.2, 95% CI (0.5–16.8), p=0.028] remained significantly associated with seroprevalence of HBsAg in patients at FRRH as shown in Table 3&4.

Table 3: Bivariate and Multivariate analysis of socio-demographic risk factors for HBV Infection amongst patients attending FRRH

Variables	Value	Seroprevalence of HBsAg		COR (95% CI)		AOR (95% CI)		P -
		Negative	Positive					
		n	n	OR	CI	OR	CI	
Gender	Male	42	6	12.1	3.5 - 30.4*	3.5	1.0 – 20.6	0.008*
	Female	62	2	Ref		Ref		
Residence	Urban	24	7	9.2	2.0 - 25.5*	4.0	1.8 – 18.5	<0.001*
	Rural	80	1	Ref		Ref		
Age	18–24	16	0	Ref		Ref		
	25–34	51	5	1.1	0.6–2.0	1.1	0.5–2.4	0.071
	35–44	30	1	1.1	0.1–2.1	0.7	0.05–1.9	0.815
	≥45	7	2	2.3	1.1–5.2	1.7	0.6–5.0	0.208
Marital	Married	63	6	2.1	1.1 – 3.8*	1.6	0.2 – 2.8	0.085
	Single	19	1	2.4	1.3–4.6	1.4	0.5 – 4.0	0.528
	Separated	22	1	Ref		Ref		
Educational	No Education	17	2	Ref		Ref		
	Primary	50	1	1.1	0.6–2.0*	1.1	0.5–2.4	0.254
	Secondary	26	3	1.1	0.6–2.1	0.7	0.3–1.7	0.316
	Tertiary	12	1	2.3	1.1–5.2	1.7	0.1–6.0	0.305
Occupational	No work	30	1	Ref		Ref		
	Peasant farming	54	1	1.1	0.6–2.0	1.1	0.5–2.4	0.254
	Business	10	5	1.1	0.6–2.1*	0.7	0.3–1.7	0.001*
	Gov't employee	10	1	2.3	1.1–5.2	1.7	0.1–5.2	0.200
Family size	≤2	7	0	Ref		Ref		
	3–4	14	1	2.1	0.7 - 5.5	2.2	0.5 - 8.8	0.114
	≥5	83	7	3.4	1.4 - 7.4*	5.8	2.2 - 22.6	0.028*

Table 4: Bivariate and Multivariate analysis of other risk factors of HBV Infection amongst patients attending FRRH

Variables		Seroprevalence of HBsAg		COR (95% CI)		AOR (95% CI)		P - Value
		Negative	Positive					
		n	n	OR	CI	OR	CI	
Tattooing on body	Yes	0	0	Ref	Ref			
	No	104	8	5.8	2.5 – 14.4	4.5	1.8 – 11.5	0.601
Body piercing	Yes	83	7	1.2	0.8 – 6.5*	2.2	1.1 – 9.5	<0.001*
	No	13	1	Ref		Ref		
History of circumcision	Yes	22	2	0.6	1.1–5.5*	1.0	0.5 – 5.0	2.882
	No	82	6	Ref		Ref		
History of hospitalization	Yes	89	4	1.1	0.5–3.8*	1.6	0.1–4.1	1.053
	No	15	4	Ref		Ref		
Dental extraction at health institutions	Yes	78	3	2.0	1.8–7.6*	1.1	0.6–6.5	1.182
	No	26	5	Ref		Ref		
Catheterization	Yes	14	2	Ref		Ref		
	No	90	6	1.5	0.1–2.8	1.4	0.5–5.2	0.668
Alcohol drinking or drug/substance utilization	Yes	68	7	1.0	0.4–3.0*	8.0	3.9–21.1	0.006*
	No	36	1	Ref		Ref		
Unprotected sexual behavior	Yes	63	8	1.4	0.6–3.8*	7.4	1.8–54.2	0.001*
	No	41	0	Ref		Ref		
Ever smoke cigarette	Yes	37	2	Ref		Ref		
	No	67	6	2.5	1.4 - 7.1	5.8	2.0 – 8.4	1.740
Sharing of sharp personal items	Yes	79	6	1.1	0.6–2.1*	4.2	0.5–16.8	0.028*
	No	25	2	Ref		Ref		

Notes: *Significant

Abbreviations: COR - Crude odds ratio; AOR - Adjusted odds ratio; CI - Confidence interval

DISCUSSIONS

According to WHO classification criteria of HBsAg prevalence, this prevalence observed at FRRH is categorized as 'highly endemic' [15]. The observed HBsAg prevalence at FRRH at 7.14% is almost twice the national prevalence reported in the Uganda Population-based HIV Impact Assessment (UPHIA) 2016–2017 national sero survey, where HBV infection prevalence among Ugandan adults was reported at 4.3% [19]. In the same survey, south-west Uganda where FRRH is located in the Kabarole district was reported to have the lowest prevalence of 0.8% by thenational average [19]. The findings of this study therefore indicate an 88.8% increment of the HBsAg prevalence at FRRH alone in three years. The prevalence established at FRRH is nearly consistent with the national prevalence reported slightly more than a decade ago of 10.3% [20]. However, it is lower than the northern Uganda prevalence reported at 17.6% [21]. This study has been able to establish a significant association between HBsAg seropositivity and particular socio-demographic variables including gender, place of residence, occupation, and number of family members in a household. Male patients were 3.5 times more likely to turn out HBsAg seropositive [AOR=3.5, 95% CI (1.0– 20.6), p=0.008]. This finding is consistent with a study in Nigeria that found male adults 3 times more likely to turn up Hepatitis B positive than females. This pattern in Nigeria was attributed to the fact that the males were more exposed to the risk factors that were associated with HBsAg than the females [22]. Individuals residing in an urban setting were 4 times more likely to return an HBsAg positive result than those who lived in rural areas [AOR= 4.0, 95% CI (1.8 – 18.5), p=<0.001]. This finding is corroborated by a study in Rwanda that reported pregnant women in urban centres to be more likely to test positive for HBsAg than those in rural settings [23]. Individuals who operated a business or were self-employed were 0.7 times more likely to present with HBsAg positive results than those who earned an income through other means [AOR= 0.7, 95% CI (0.3–1.7), p=0.001]. This result is similar to that reported in Beijing China and was attributed to the fact that individuals in business premises are always in crowded settings to which crowding was found to be significantly associated with Hepatitis B virus contraction [24]. The study also established that individuals who lived in a family setting of five or more members were almost 6 times more likely to test positive for HBsAg than those from family settings of lesser numbers [AOR= 5.8, 95% CI (2.2-22.6), p=0.028]. This finding is consistent with results from studies in Bahrain, and Ethiopia among pregnant women and in Nigeria among children who showed that those from families above 4 people were very highly likely to contract the Hepatitis B virus. In the Bahrain case, this pattern of association was attributed to the frequency of interaction of the many family members with the outside masses which increased the likelihood of one or many contracting the virus and delivering it home [25, 26]. The study also established other risk factors other than sociodemographic variables that had a significant association with HBsAg seropositivity among patients attending FRRH which included body piercing, alcohol drinking habits, unprotected sexual behaviour and sharing of sharp personal items. Individuals with a history of practising body piercing were 2.2 times more likely to test positive for HBsAg than those with no record of piercing their bodies [AOR=2.2, 95% CI (1.1 – 9.5), p=<0.001]. This finding is corroborated by other findings in Bangladesh, in Ethiopia and among pregnant women in Mbarara. This is attributed to the fact that tools used in body piercing can transmit the Hepatitis B virus if contaminated and used between individuals without sterilization [27, 28, 29]. Alcohol drinking was a significant factor in HBsAg seropositivity showing those who indulged in the habit were 8 times more likely to test positive for HBsAg [AOR=8.0, 95% CI (3.9–21.1), p=0.006]. This finding is consistent with a study in Belgium and Brazil which attributed it to the effect of alcohol as a result of another significantly associated risk factor like unprotected sex and persistence in crowded social areas [30, 31]. Individuals who indulged in unprotected sexual behaviour were 7.4 times more likely to test positive for HBsAg than those who didn't [AOR=7.4, 95% CI (1.8–54.2), p=0.001]. A study in Ethiopia reported a similar significant association among those who indulged in unprotected sex. Unprotected sex is one of the most reported and confirmed routes of transmission of the Hepatitis B virus [28]. Sharing of sharp personal items also showed a significant association with HBsAg seropositivity among patients attending FRRH [AOR=4.2, 95% CI (0.5–16.8), p=0.028]. This finding is consistent with studies done in Northern Uganda, Nigeria, and Iraq and also reported generally as one of the greatest risk

factors by a systematic analysis in sub-Saharan Africa [32, 22, 21, 15].

CONCLUSION

Out of 112 patients studied at FRRH, 8 turned out positive for HBsAg representing a 7.14% prevalence of Hepatitis B virus amongst the hospital population. Socio-demographic variables including gender, place of residence, occupation, and staying in a family of 5 or more members in a household showed significant association with HBsAg seropositivity. Body piercing, alcohol drinking habits, unprotected sexual behaviour and sharing of sharp personal items were risk factors that showed a significant association with HBsAg seropositivity among patients attending FRRH.

Recommendations

Results of the study show an 88.8% increase in Hepatitis B prevalence in only 3 years based on national averages reported for the region in 2017. To prevent future hepatitis B virus infection in this study area and countrywide, we recommend universal vaccination of children should be promoted and the hepatitis B birth dose vaccine needs to be implemented in the country. However, HBV vaccination would not be as effective for the adult population, therefor we recommend alternative solutions like population screening and treatment of HBV to be able to manage and reduce the transmission of HBV among adults. We recommend mass education of the public about the risk of unsafe sexual practice, direct contact with blood and body fluids, sharing sharp items such as razors, nail clippers, toothbrushes, and earrings or body rings, and use of unsterile needles for ear or body piercing, and tattoos HBV transmission. We believe this can go a long way in curbing the transmission rate of the HBV virus.

REFERENCES

1. WHO, World Health Organization. (2017). *Web Annex B. WHO estimates of the prevalence and incidence of hepatitis C virus infection by WHO Centre for Disease Analysis in Global hepatitis report 2017*.
2. Martínez, A. A., Zaldívar, Y., Arteaga, G., de Castillo, Z., Ortiz, A., Mendoza, Y. and Pascale, J. M. (2015). Phylogenetic Analysis of Hepatitis B Virus Genotypes Circulating in Different Risk Groups of Panama, Evidence of the Introduction of Genotype A2 in the Country. *PLoS ONE*, *10*(7), e0134850.
3. Maniga Josephat, Theophilus Pius, and Blessing Jacob Yashim (2020). Seroprevalence Of Hepatitis B Virus Infection Among Preclinical Students of Kampala International University Western Campus Uganda: A Cross-sectional Study. International Journal of Creative Research Thoughts (IJCRT), Volume 8, Issue 5, Pages 6.
4. Miruka, C. O., Matunda, N. C., Ejekwumadu, N. J. and Mokembo, J. N. (2015). Design of a Recombinant Hepatitis B Vaccine Based on Stably Binding HLA-I Peptides. *J Biomol Res Ther*, *4*(120), 2-4. doi: 10.4172/2167-7956.1000120
5. Ministry of Health, U. (2019). *Uganda Population-Based HIV Impact Assessment 2016 - 2017*. 0–252.
6. Obeagu, E. I. and Obeagu, G. U. (2017). Occult Hepatitis B infection and immunity. *Int. J. Curr. Res. Med. Sci*, *3*(8), 89-100.
7. Ifeanyi, O. E. and Uzoma, O. G. (2017). Hepatitis B Virus and Immunity. *Academic Journal of Life Sciences*, *3*(7), 36-46.
8. Shin, E. C., Sung, P. S. and Park, S. H. (2016). Immune responses and immunopathology in acute and chronic viral hepatitis. In *Nature Reviews Immunology*. https://doi.org/10.1038/nri.2016.69.
9. Obeagu, E. I., Obeagu, G. U. and Nwosu, D. C. (2016). Hepatitis B and Hepatitis C viral infection: A Review. *Int. J. Curr. Res. Chem. Pharm. Sci*, *3*(11), 10-21.
10. El-Serag, H. B. (2012). Epidemiology of viral hepatitis and hepatocellular carcinoma. Gastroenterology. 142(6):1264-1273.e1. doi: 10.1053/j.gastro.2011.12.061. PMID: 22537432; PMCID: PMC3338949.
11. Micallef, J. M., Kaldor, J. M. and Dore, G. J. (2006). Spontaneous viral clearance following acute hepatitis C infection: A systematic review of longitudinal studies. In *Journal of Viral Hepatitis*. https://doi.org/10.1111/j.1365-2893.2005.00651.x.
12. Jonas, M. M. (2011). Hepatitis c virus infection.

In *Liver Disease in Children, Fourth Edition*. https://doi.org/10.1017/CBO9781139012102.020.

13. UN General Assembly (2015) Resolution Adopted by the General Assembly on 25 September 2015. Transforming Our World: The 2030 Agenda for Sustainable Development.http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E
14. World Health Organization (WHO). (2016). Global Health Sector Strategy On Viral Hepatitis 2016–2021 Towards Ending Viral Hepatitis.
15. Spearman, C. W., Afihene, M., Ally, R., Apica, B., Awuku, Y., Cunha, L., Dusheiko, G., Gogela, N., Kassianides, C., Kew, M., Lam, P., Lesi, O., Lohouès-Kouacou, M. J., Mbaye, P. S., Musabeyezu, E., Musau, B., Ojo, O., Rwegasha, J., Scholz, B. and Sonderup, M. W. (2017). Hepatitis B in sub-Saharan Africa: strategies to achieve the 2030 elimination targets. *The Lancet Gastroenterology and Hepatology*, *2*(12), 900. https://doi.org/10.1016/S2468-1253(17)30295-9.
16. Guerra, J., Garenne, M., Mohamed, M. K. and Fontanet, A. (2012). HCV burden of infection in Egypt: Results from a nationwide survey. In *Journal of Viral Hepatitis*. https://doi.org/10.1111/j.1365-2893.2011.01576.x.
17. Fisher, R. P., Chin, D. M. and McCauley, M. R. (1990). Enhancing eyewitness recollection with the cognitive interview. *National Police Research Unit Review*, *6* (3), 11.
18. Ugwu, C. N., Eze Val, H. U., Ugwu, J. N., Ogenyi, F. C. and Ugwu, O. P. C. (2023). Ethical Publication Issues in the Collection and Analysis of Research Data. Newport International Journal of Scientific and Experimental Sciences (NIJSES) 3(2): 132-140. https://nijournals.org/wp-content/uploads/2023/07/NIJSES-32-132-140-2023.pdf
19. Ministry of Health, Uganda (2019) Uganda Population-Based HIV Impact Assessment (UPHIA) 2016-2017: Final Report. Ministry of Health, Kampala.
20. Bwogi, J., Braka, F., Makumbi, I., Mishra, V., Bakamutumaho, B., Nanyunja, M., Opio, A., Downing, R., Biryahwaho, B. and Lewis, R. F. (2009). Hepatitis B infection is highly endemic in Uganda: findings from a national serosurvey. *African Health Sciences*, *9*(2), 98–108.
21. Ochola, E., Ocama, P., Orach, C. G., Nankinga, Z. K., Kalyango, J. N., McFarland, W. and Karamagi, C. (2013). High burden of hepatitis B infection in Northern Uganda: Results of a population-based survey. *BMC Public Health*, *13*(1). https://doi.org/10.1186/1471-2458-13-727.
22. Omatola, C. A., Onoja, B. A. and Agama, J. (2020). Detection of Hepatitis B Surface Antigen among Febrile Patients in Ankpa, Kogi State, Nigeria. *Journal of Tropical Medicine*, *2020*. https://doi.org/10.1155/2020/5136785.
23. Iradukunda, P. G., Habyarimana, T., Niyonzima, F. N., Uwitonze, A. Y. and Mpunga, T. (2020). Risk factors associated with hepatitis B and C in rural population of Burera district, Rwanda. Pan African Medical Journal, *35*, 1–10. https://doi.org/10.11604/pamj.2020.35.43.16226.
24. Zhao, X., Shi, X., Lv, M., Yuan, B. and Wu, J. (2021). Prevalence and factors associated with hepatitis B virus infection among household members: a cross-sectional study in Beijing. *Human Vaccines and Immunotherapeutics*, *00*(00), 1–7. https://doi.org/10.1080/21645515.2020.1847951.
25. Gedefaw, G., Waltengus, F., Akililu, A. and Gelaye, K. (2019). Risk factors associated with hepatitis B virus infection among pregnant women attending antenatal clinic at Felegehiwot referral hospital, Northwest Ethiopia, 2018: An institution-based cross-sectional study. BMC Research Notes, 12(1), 1–7. https://doi.org/10.1186/s13104-019-4561-0.
26. Janahi, E. M. (2014). Prevalence and risk factors of hepatitis B virus infection in Bahrain, 2000 through 2010. *PLoS ONE*, *9*(2). https://doi.org/10.1371/journal.pone.0087599.
27. Ashraf, H., Alam, N. H., Rothermundt, C., Brooks, A., Bardhan, P., Hossain, L., Salam, M. A., Hassan, M. S., Beglinger, C. and Gyr, N. (2010). Prevalence and risk factors of hepatitis B and C virus infections in an impoverished urban

community in Dhaka, Bangladesh. *BMC Infectious Diseases*, *10*, 1–8. https://doi.org/10.1186/1471-2334-10-208.

28. Belay, A. S., Abateneh, D. D., Yehualashet, S. S. and Kebede, K. M. (2020). Hepatitis B virus infection and associated factors among adults in Southwest Ethiopia: Community-based cross-sectional study. *International Journal of General Medicine*, *13*, 323–332. https://doi.org/10.2147/IJGM.S259375.
29. Hillary, A., Sezalio, M., Pauline, B., Richard, M., Mark, L. H., Salongo, W., Hamson, K., Ronald, M., Musa, K., Joseph, N., Julius, M. and Taseera, K. (2019). Prevalence and Factors Associated with Hepatitis B Surface Antigen Positivity among Women Receiving Antenatal Care at Mbarara Regional Referral Hospital. *Journal of Tropical Diseases & Public Health*, *07*(05), 1–10. https://doi.org/10.35248/2329-891x.19.7.321.
30. de Paula Machado, D. F. G., Martins, T., Trevisol, D. J., Vieira e Silva, R. A., Narciso-Schiavon, J. L., Trevisol, F. S. and Schiavon, L. de L. (2013). Prevalence and factors associated with hepatitis B virus infection among senior citizens in a Southern Brazilian city. *Hepatitis Monthly*, *13*(5), 1–10. https://doi.org/10.5812/hepatmon.7874.
31. Koc, Ö. M., Kremer, C., Bielen, R., Buscchots, D., Hens, N., Nevens, F. and Robaeys, G. (2019). Prevalence and risk factors of hepatitis B virus infection in Middle-Limburg Belgium, year 2017: Importance of migration. Journal of Medical Virology, 91(8):1479–1488. https://doi.org/10.1002/jmv.25457.
32. Hussein, N. R. and Daniel, S. (2017). A study of hepatitis B virus-associated risk factors in patients attending hepatitis unit in Duhok city, Iraq. *Archives of Clinical Infectious Diseases*, *12*(3). https://doi.org/10.5812/archcid.62420.

CITE AS: Muthegheki, Godwin (2024): Prevalence and Risk Factors Associated with Chronic Hepatitis B Among Patients Attending Fort Portal Regional Referral Hospital in Kabarole District, Western Uganda. IDOSR JOURNAL OF EXPERIMENTAL SCIENCES, 10(1): 69-81. https://doi.org/10.59298/IDOSR/JES/101.6981.1824