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Knowledge, attitudes, and practices of nursing staff on Hepatitis B in Libreville (Gabon)

Abstract

Introduction: The knowledge, attitudes, and practices of nursing staff, who are key actors in the fight against hepatitis B, are essential to assess for the development of a national viral hepatitis control strategy.

Patients and Methods: This was a WHO "Knowledge, Attitudes, and Practices" (KAP) study conducted among nurses at the Libreville University Hospital Center between January 1 and June 30, 2024, using an anonymous self-administered questionnaire. Responses were categorized as "excellent" (80–100% correct answers), "satisfactory" (50–79%), or "insufficient" (<50%). Data were analyzed using Epi-Info version 7.2.5. Informed consent was obtained and personal data confidentiality was respected.

Results: Participation rate was 61.02%. Respondents had a sex ratio of 0.47, a mean age of 28 (±5) years, and an average professional experience of 5 (±4) years. The overall level of knowledge was insufficient: sexual and blood transmission modes were mentioned by 44.44% and 56.94% of nurses, respectively. Cirrhosis and primary liver cancer were cited as complications by 29.63% and 25% of respondents. Overall attitude was also insufficient: only 21.76% knew their serological status and 29.17% were vaccinated. However, practices were satisfactory: 69.91% requested hepatitis B serology in case of blood exposure, 92.59% changed gloves between patients, and 77.31% systematically used disposable materials.

Conclusion: Nurses' knowledge and attitudes toward hepatitis B were insufficient, while practices were relatively acceptable. Improvement requires continuous training programs, integrated or not into a national hepatitis B control strategy.

Keywords: knowledge, attitudes, practices, hepatitis B, nurses

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Introduction

Hepatitis B virus (HBV) infection is a major public health problem worldwide. It is estimated that two billion people have been infected, and nearly 250 million individuals live with chronic hepatitis B, with a global prevalence of 3.5%.[1] In Africa, the prevalence ranges from 2% to 20%, placing the continent among regions with the highest endemicity.[2] Chronic hepatitis B infection is a leading cause of cirrhosis and primary liver cancer, which together account for nearly 1 million deaths each year.[3] Despite the existence of an effective vaccine and antiviral treatments capable of reducing morbidity and mortality, hepatitis B remains underdiagnosed and undertreated, particularly in low- and middle-income countries.[4] Health care workers (HCWs), and particularly nurses, play a crucial role in the prevention, diagnosis, and management of hepatitis B. They are at the forefront of patient care and are frequently exposed to blood and other biological fluids, placing them at increased risk of HBV infection.[5] Adequate knowledge, positive attitudes, and appropriate practices (KAP) among nursing staff are therefore essential both for their own protection and for the effective control of hepatitis B in health facilities.

In Gabon, and specifically in Libreville, there are few data regarding the level of knowledge, attitudes, and practices of nursing staff toward hepatitis B. Yet, such information is essential for the development and implementation of a national control strategy adapted to the local context. The objective of this study was therefore to assess the knowledge, attitudes, and practices of nursing staff regarding hepatitis B at the Libreville University Hospital Center.

Patients and methods

This was a cross-sectional descriptive study based on the World Health Organization (WHO) "Knowledge, Attitudes, and Practices" (KAP) model. It was conducted among nurses at the Libreville University Hospital Center (CHUL) between January 1 and June 30, 2024. The study population consisted of all nurses working at CHUL during the study period. Inclusion criteria were nurses present during data collection and consenting to participate. Those absent or refusing participation were excluded. Data were collected using an anonymous, self-administered questionnaire developed based on WHO recommendations. The questionnaire comprised four sections: Sociodemographic characteristics (age, sex, professional experience); Knowledge of hepatitis B (modes of transmission, complications, prevention); Attitudes toward hepatitis B (vaccination, knowledge of serological status); Practices in relation to hepatitis B prevention (use of gloves, disposable materials, management of blood exposure). Responses were scored and classified as: Excellent for a score of 80 to100% correct answers; Satisfactory for 50 to 79% correct answers; and Insufficient for score less than 50% correct answers. Data were entered and analyzed using Epi-Info version 7.2.5. Results were expressed as proportions, means with standard deviation, and compared using appropriate statistical tests. A p value <0.05 was considered statistically significant. Participation was voluntary and informed consent was obtained from all respondents. Data confidentiality and anonymity were ensured throughout the study.

Results

Of the 354 nurses surveyed, 216 agreed to complete the questionnaire, representing a participation rate of 61.02%. There were

69 men and 147 women, giving a sex ratio of 0.47. The average age was 28 ± 5 years and the average length of service was 5 ± 4 years. Nurses living with a partner accounted for 39.35% and those with at least one child accounted for 61.57%.

The assessment of knowledge as reported in Table 1 reveals that all were aware of the existence of hepatitis B and that the main sources of information were school (42.13%), the workplace (38.43%) and social networks (31.94%).

Table 1 Assessment of the knowledge of nursing staff at Libreville University Hospital on hepatitis B

Assessment of knowledge on hepatitis B	Number (N=216)	Percentage (%)
Existence of hepatitis B		
Yes	216	100
No	0	0
Source of information		
Family	48	22.22
Television	56	25.93
School	91	42.13
Work place	83	38.43
Social media	69	31.94
Type of causative agent		
Parasite	4	1.85
Virus	90	41.67
Fungus	10	4.63
Bacterium	22	10.18
Don't know	90	41.67
Transmission mode*		
Sexual contact	96	44.44
Transmission blood	123	56.94
Scarifications et tatoos	138	63.89
Mother to child	141	65.28
Saliva	96	44.44
Clinical signs*		
Fatigue	60	27.78
Abdominal pain	66	30.56
Jaundice	126	58.33
Fever	117	54.17
Don't know	41	18.98
Complications*		
Cirrhosis	64	29.63
Gastric ulcer	27	12.50
Liver cancer	54	25.00
Stomach cancer	23	10.65
Don't know	48	22.22
Existence of treatment		
Yes	63	29.17
No	27	12.50
Don't know	126	58.33
Existence of vaccine		
Yes	126	58.33
No	42	19.44
Don't know	58	26.85

* independent multiple-choice question

The overall assessment of the level of knowledge was 46.22%, or 'insufficient'. In fact, 41.67% of nurses were aware of the viral nature of the causative agent. Sexual and blood transmission were mentioned by 44.44% and 56.94% of nurses, respectively. The main complications, cirrhosis and primary liver cancer, were mentioned by 29.63% and 25% of nurses, respectively. A frequence of 22.22% of nurses were unaware of any complications of hepatitis B. at the other hand, 29.17% of nurses were aware of the existence of treatment and 58.33% were aware of the existence of a vaccine. In multivariate analysis, there was no statistical difference in the level of knowledge based on gender (p=0.18), marital status (p=0.71) or length of practice (p=0.56).

The overall attitude of nurses was 38.80% or 'inadequate'. Indeed, as shown in Table 2, 21.76% of nurses knew their serological status and 29.17% were vaccinated. The systematic wearing of gloves was 39.82% and systematic hand washing was 29.63%. An annual medical examination was carried out by 34.26% of nurses. Sterilisation of reusable equipment and care precautions were similar for all patients, with 43.98% and 47.22% of nurses respectively. Traditional scarification and/or tattoos were practised by 69.91% of nursing staff. There was no statistical difference in the level of knowledge based on gender (p=0.26), marital status (p=0.41) or length of service (p=0.19).

Table 2 Attitude of nursing staff at Libreville University Hospital towards hepatitis B

Attitude	Number (N=216)	Percentages (%)
Known serological status		
Yes	47	21.76
No	169	78.24
Hepatitis B vaccination status		
Vaccinated	63	29.17
Unvaccinated	140	64.81
Don't know	13	6.02
Systematic wearing of gloves		
Yes	86	39.82
No	34	15.74
Sometimes	96	44.44
Availability of personal protective equipment		
Permanent	100	46.30
Intermittent	116	53.70
Absent	0	0
Systematic hand washing		
Yes	64	29.63
No	15	6.94
Sometimes	137	63.43
Annual medical examination		
Yes	74	34.26
No	98	45.37
Sometimes	44	20.37
Existence of protection procedures		
Yes	56	25.93
No	84	38.89
Sometimes	76	35.18

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Table 2 Continued....

The sterilisation of reusable equipment is		
Identical for all patients	95	43.98
Depending on the patient's serological status	86	39.81
Depending on vaccination status	10	4.63
Don't know	25	11.58
Precautionary care is		
Identical for all patients	102	47.22
Depending on the patient's serological status	94	43.52
Depending on vaccination status	6	2.78
Don't know	14	6.48
Replace the needle caps		
Yes	151	69.91
No	65	30.09

The overall practice of nursing staff was 54.83%, or 'satisfactory'. As shown in Table 3, 21.76% of nurses had already been victims of an AES and 29.17% said that an AES protocol was available. Reporting an AES was mandatory for 39.82% of nurses, and 24.07% knew that testing of the nurse was mandatory. Among the serological tests requested in the event of an AES, hepatitis B was mentioned by 69.91% of nurses and hepatitis C by 50% of them. Changing gloves between two patients was systematic for 92.59% of nurses, and the use of single-use equipment was systematic for 77.31%. There was no statistical difference in the level of practice according to gender (p=0.88), marital status (p=0.14) or length of service (p=0.67).

Table 3 Nursing staff practices with regard to hepatitis B

Practice	Number (N=216)	Percentages (%)
Victim of an accident involving exposure to blood (AIEB)		
Yes	47	21.76
No	169	78.24
Availability of a protocol in case of AIEB		
Yes	63	29.17
No	140	64.81
Don't know	13	6.02
Existence of an anti-hepatitis B serum		
Yes	76	35.19
No	80	37.04
Don't know	56	27.77
Declaration of an AIEB		
Mandatory	86	39.82
Depending on the nurse's vaccination status	34	15.74
Depending on the patient's serological status	96	44.44

Table 3 Continued....

Don't know	0	0
In the event of an AIEB, the nurse's sample is		
Obligatoire	52	24.07
Depending on the nurse's vaccination status	81	37.50
Depending on the patient's serological status	83	38.43
Don't know	0	0
In the event of an AIEB, the serological tests to be performed are *		
Hepatitis B	151	69.91
HIV	216	100
Hepatitis C	108	50
Don't know	0	0
In the event of an AIEB, you should*		
Wash thoroughly with water	100	46.30
Wash with soap	186	86.11
Clean with alcohol	216	100
Don't know	0	0
Changing gloves between two patients is *		
Systematic	200	92.59
Depending on the patient's serological status	144	66.67
Depending on the equipment available	216	100
Depending on the soiled nature of the gloves	216	100
Use of single-use equipment is *		
Systematic	167	77.31
Depending on the patient's serological status	208	96.30
Depending on the available devices	101	46.76
Depending on the treatment to be performed	216	100
Wearing a mask is compulsory *		
During a blood test	88	40.74
In the event of assistance with a medical procedure	129	59.72
Depending on the patient's serological status	216	100

Table 3 Continued....

Whatever the nursing care	98	45.37

* independent multiple-choice question

* independent multiple-choice question

Discussion

Nursing staff play a key role in the fight against viral hepatitis B through their ability to raise awareness and set an example in society. Their participation rate in this survey was 61.02%. Although lower than that observed by Bawé et al in Togo (76%) and Laraqui et al in Morocco (73.3%), this participation rate demonstrates the willingness of these staff to assess their professional skills.[8,9] As in most studies conducted in Africa, the population was young, with a predominance of women in this profession.[8-16] However, the average professional experience of 5 ± 4 years seems low and unrepresentative of a profession whose career often extends beyond 35 years, but it does give us a realistic overview of the situation.

Although hepatitis B was known to all, as in the studies by Bomba, Lawson et al., and the main sources of information, namely school, the workplace and social networks, could be considered acceptable, the overall level of knowledge among nursing staff was insufficient, as in the study by Ali Mahamat et al.[13,14,16] In fact, only 41.67% of nurses were aware of the viral nature of the causative agent, while only 44.44% knew that the main modes of transmission were sexual, 56.94% knew that it was blood-borne, and 65.28% knew that it was transmitted from mother to foetus. This lack of knowledge about transmission routes was similar to that of the general population already observed by Itoudi et al., contrasting with data from Bomba and Bawé et al., where the blood-borne route of transmission was known by 92.3% and 94.52% respectively.[8,16,17] Similarly, the sexual route was known by 88.7% according to Kodjoh et al.[18] These differences, as shown by Napon Zongo et al. on the importance of awareness, could be explained by the presence in certain African countries of national programmes to combat hepatitis, which is not the case in Gabon.[19] Among the complications, cirrhosis was recognised by only 29.63% of nurses, whereas Bomba et al. found 85.7%.[16] This confirms the lack of awareness campaigns in our country and of continuing education on hepatitis B. Only 58.33% of nurses were aware of the existence of a vaccine against hepatitis B, compared to 89% in the study by Bomba et al. and 98.6% in that by Bagny et al.[15] This confirms the lack of continuing education and awareness about hepatitis B.

Attitudes were also deemed insufficient. Indeed, 21.76% of nurses knew their hepatitis B serological status and only 29.17% said they had been vaccinated. These results are similar to the data reported by Lawson, Ali Mahamat, Bomba et al.[13,14,16] Only Bawe et al. found vaccination coverage of 65.1%.8 These data raise questions about the mandatory nature of hepatitis B vaccination in the West for healthcare personnel, despite its low prevalence and insufficient vaccination coverage in our highly endemic countries.[1] This low vaccination coverage, despite the existence of an expanded vaccination programme in Gabon that includes hepatitis B, was already highlighted by Minto'o et al.[20] Annual visits were systematic for only 34.26% of staff, and sterilisation of equipment was identical for all patients in only 43.98% of cases, while 69.91% admitted to recapping needles. These shortcomings, observed by Laraqui et al., have been little studied in Africa and reveal the insufficient impact of hospital hygiene and occupational health services in our hospitals.[9]

With regard to overall practice, although considered satisfactory, 21.76% of nurses acknowledged having been victims of AES. In addition, 29.17% said they had a protocol to follow in the event of an AES, and 34.89% knew that reporting an AES was mandatory. Bomba et al. observed 55% of AES, while Laraqui et al. revealed that for 58.9% of AES, only 5.8% had been reported.[9,16] These observations were also made by Lawson et al., who concluded that this was a consequence of the lack of continuing education programmes for healthcare personnel.[14] Lekfif in Marocco and Zoa-Assoumou in Gabon also confirmed that continuing education improved practices against viral hepatitis.[21,22]

Limitations

First, the use of a self-administered questionnaire may have introduced information bias, with participants overreporting desirable practices. Second, the study was limited to a single hospital center, which may affect generalizability. Nevertheless, the results provide valuable insights into the current state of KAP among nurses in Gabon.

Conclusion

The nursing staff were young women with limited professional experience in our facility. Their level of knowledge and attitude are insufficient for hepatitis B despite sufficient practice. This highlights the urgent need for continuous education and training programs for nursing staff.

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