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KNOWLEDGE, ATTITUDE, AND PRACTICE TOWARDS HEPATITIS B VIRUS INFECTION AMONG YOUTH ADMITTED TO A PUBLIC REHABILITATION CENTER, RWANDA.

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Key Words

Attitude, Hepatitis B Virus Infection, Knowledge, practice, youth, Iwawa Rehabilitation Center (IRC)

Abstract

Introduction: Hepatitis B Virus (HBV) continues to overload the world's health systems, regardless of the availability of well-tolerated drugs and an effective vaccine. Most youths in Iwawa Rehabilitation Center (IRC) had been in behaviors such as injection drug use, unsafe sex with multiple partners, and all sorts of physical violence. The levels of knowledge, attitude, and practice regarding HBV infection among youths in IRC are not known. With poor knowledge, a negative attitude, and poor practice, youths in IRC are at high risk of catching or spreading HBV infection. This study assessed knowledge, attitude, and practice towards HBV infection among youths in IRC. **Methods:** this is a quantitative cross sectional study that took place from 7th to 31st March 2022, and targeted 1914 youths who were attending rehabilitation programs at IRC. A simple random sampling technique was used to select the study respondents. Inclusion criteria were being admitted to IRC, youth, and consent for participation. Not consenting and having severely ill were the exclusion criteria. Data were collected by using a computer assisted face-to-face interview with a pretested structured questionnaire and analyzed using SPSS version 26. **Results:** Totally, 404 youths were included in this study. All respondents were male with ages ranging between 18 and 35 years and an average of 25.6 years (*SD = 4.5*). More than half (53.7%) were aged 18 to 25 years while 46.3% were 26 to 35 years old. Most (74.0%) of respondents were single and 26% were cohabitants. The majority (59.2%), reached primary school, 25.2% reached secondary school, and 15.6% were illiterate. Approximately 60% of respondents had a good level of knowledge, 56.44% had positive attitude, and 37.13% had a good preventive practice against HBV infection. Respondents with a good level of knowledge had 1.84 higher odds of having good practice than those with poor knowledge (*OR* = 1.84, *p* = .005, 95% *CI* = [1.19, 2.84]). The level of attitude was not significantly related to the level of preventive practices. **Conclusion:** Youth in IRC lack the necessary level of knowledge to effectively perform preventive practices against HBV infection. Health education should be incorporated into rehabilitation programs provided to youth in rehabilitation centers.

Introduction

HBV continues to overload the world's health systems regardless of the availability of well-tolerated drugs and an effective vaccine (Nguyen et al., 2020). The estimated seropositivity of the virus surface protein (HBsAg) was 3.9% globally, 7.2 in Africa, 5.1% in Sub-Saharan East Africa, and 3.4% in Rwanda (Razavi-Shearer et al., 2018). However, the recent nationwide screening campaign conducted in Rwanda showed 3.9% of the viral surface protein seropositivity (Makuza et al., 2019). This virus is potentially infectious and can cause health-threatening liver diseases, including hepatocellular carcinoma and cirrhosis (Bogler et al., 2018). It is usually transmitted from mother to neonate at birth and between children in households (Gomes et al., 2019). It is also mainly transmitted through sharing sharp instruments and having unprotected sex with infected people (Bogler et al., 2018). The infection with HBV is prevented through being fully vaccinated, avoiding unsafe sex, and taking prophylaxis after a suspected exposure (Schillie et al., 2018). Iwawa Rehabilitation Center (IRC) was established with the mission of helping drug addicts and delinquent male youths to become productive Rwandans (Tesi, 2020). Most youths in the center had been in behaviors such as injection drug use, unsafe sex with multiple partners, and all sorts of physical violence. Some of them were frequently detained and have been alternating correctional facilities. In Rwanda, chronic HBV infection was found to be more prevalent (5.1%) among men in high risk groups, including injection drug users and prisoners (Umutesi et al., 2021). This may be attributed to the lack of knowledge as it was found among prisoners in Switzerland (Gétaz et al., 2018) and Nigeria (Dan-Nwafor et al., 2018). Additionally, poor knowledge was reported to be the leading reason for avoiding the vaccine and has challenged the infection elimination program in developing countries (Gomes et al., 2019; Machmud et al., 2021). The Knowledge, attitude, and practice model (KAP) asserts that knowledge influences attitude, and attitude influences behavior change (Kilale, 2016). With poor knowledge, negative attitude, or poor practice, youths in IRC are at high risk of catching or spreading the infection. Unfortunately, knowledge regarding HBV infection among youth in IRC is currently not known. The present research assessed knowledge, attitude, and practice toward HBV infection among youths in IRC.

Materials and method

Research design, population and the study area

This is a cross-sectional study with a quantitative approach. It was carried out in Iwawa Rehabilitation Center (IRC). IRC is one of three rehabilitation centers of the National Rehabilitation Service. It is located on Iwawa Island of Kivu Lake, in Boneza Sector of Rutsiro District, Western Province, Rwanda. It was established by the government of Rwanda in 2010 with a mandate to rehabilitate male delinquents of over 18 years old who exhibit deviant behaviour. The main mission of IRC is to rehabilitate male delinquents from across the country so that they stop drug consumption or any other deviant behaviour, equip them with vocational and hands on skills

that help them integrate in the community and participate in the social- economic and political development of Rwanda. This research targeted 1914 male youths who were attending rehabilitation programs in IRC during the study period. Being admitted to IRC, youth, and consenting for participation were the inclusion criteria of this study. Being mentally ill, having severe illness, and not consenting for participation were exclusion criteria of this study.

Sampling and data collection

The minimum sample size (n) for this research was 385. It was obtained by using the sample size formula for estimating proportions, $n = z^2p(1-p)/d^2$ (Cross & Daniel, 2018). Where; z-score (z) is 1.96 for 95% confidence level, the estimated proportion (p) of 50%, and the margin of error (d) of 0.05. With the anticipated non-response rate of 10%, the calculated sample size for this research was 424. A simple random sampling method was applied to choose the participants of this study. Firstly, A Microsoft Excel spreadsheet containing the names of all youths in the center was requested from IRC management authority. Names on the lists were randomly assigned numbers. By using Microsoft Excel, 424 random numbers between one and 1914 were generated. Youths whose names correspond to the generated numbers were invited to take part in this study. Guided by an extensive literature review, a structured questionnaire was specifically developed for this research. It had five sections labeled from A to D. Section A asked about age in years, education level, and marital status. Section B contained one item on HBV infection awareness and 19 knowledge items about signs, transmission, prevention, and treatment of HBV infection. Section C comprised of nine 5 Likert's scale items on attitude towards HBV infection. Finally, section D assessed preventive practices for HBV infection. The one-way translation technique was employed to accurately capture the meaning of the source instruments in Kinyarwanda. The research instrument was tested for both validity and reliability and reviewed by Mount Kenya University (MKU) research committee before use in the actual research. Data collection authorization was also issued by the managing authority of Rwanda National Rehabilitation service on 7th March 2022. Data for this research was collected by using Kobo Toolbox. The Kinyarwanda version of the research instrument was used to build a web-based Kobo Toolbox form. Data were collected from 14th to 19th March 2022 by the researcher. A face-to-face interview technique using a tablet was used to collect the data for this study. This was advantageous to the study, as the researcher ensured that respondents clearly understood the items. A total of 435 youths in IRC, including 31 in a pilot study and 404 in the actual study were interviewed. During the procedure, consent for participation was firstly obtained from the interviewee before collecting the data. The interview was conducted by following the exact wording and sequence of questions in the research instrument. A Microsoft Excel file containing the collected data was exported from the Kobo Toolbox website and safely stored in a password-protected folder on a personal computer.

Reliability and Validity of Instruments

Pilot research was carried out to secure the reliability of the research instrument. The overall Cronbach's α score of the research instrument was 0.72. Securing the reliability of the research instrument contributed to its validity. Research committee of MKU have assessed face and content validity of the instrument and approved it before use. The internal validity of the research was ensured by strictly following the data collection procedures. To ensure external validity, this research utilized a simple random sampling approach to choose respondents.

Data analysis

The yes answer to the item on the HBV awareness was given a score of 1 while the no answer scored 0. For other knowledge items, response options were true, false, or do not know. The correct answers scored 1, while the wrong or unknown was scored 0. The total knowledge score for each participant varied between 0 and 19. The mean knowledge score of 11 was considered the cut-off value for categorizing participants into good (≥11) or poor knowledge (<11). The attitude was measured with nine items on a 5-points Likert scale. The response options were; strongly disagree, disagree, neutral, agree, and strongly agree with scores from 1 to 5, respectively. The mean attitude score of 40 was taken as the cut-off value for categorizing respondents as having a negative attitude (<40) or a positive attitude (≥40). The practice was assessed by using five items with yes or no response options. Answers that reflect good practice were scored 1, while the response that reflects poor practice scored 0. Similarly, the mean practice score of 3 was considered as the cut-off value for categorizing respondents into good (≥3) or poor practice (<3). Categorical variables such as age groups, marital status, educational level, knowledge levels, attitude levels, and practice levels were presented as counts and percentages in tables. Mean and standard deviation of continuous variables such as age, knowledge scores, attitude scores, and practice scores were computed and narratively presented. The Chi square test was used in bivariate analysis to determine factors associated with preventive practices against HBV infection. Factors that showed a significant association with the level of practice were considered in multivariate analysis to identify the strength of the association. Multivariate analysis was conducted using binary logistic regression. All required statistical analyses were performed by using a computer program called SPSS version 26. Less than 0.05 was set as the level of statistical significance for all tests.

Ethical consideration

Before conducting this research, ethical approval was obtained from the research committee of Mount Kenya University. Further permission was obtained from the managing authority of the National Rehabilitation Service. Before the interview, each respondent was informed about the purpose and procedures of the research, as well as his right. The consent of participation was then sought from the respondent. Names of the respondents were only used on the sampling frame, which was destroyed after use. The respondent study identification

number was used as the only identifier on the data collection instrument. The research interview was conducted within a closed room to secure the privacy of the participants. Additionally, the respondent's right to quit the research was respected. The collected data were safely stored and only aggregates were reported.

Results

A total of 404 male youths in Iwawa Rehabilitation Center (IRC) were respondents in this study. Their age ranged from 18 to 35 with an average of 25.57 years (*SD* = 4.487). Table 1 displays that 53.7% were aged 18 to 25 years and 46.3% were 26 to 35 years old. Most (74.0%) of respondents were single while 26% were cohabitants. The majority (59.2%), reached primary school, 25.2% reached secondary school, and 15.6% were illiterate.

Table 1: Characteristics of the study respondents at IRC

Characteristics	Frequency	Percentage
Age groups		
18 – 25	217	53.7
26 – 35	187	46.3
Marital status		
Single	299	74.0
Cohabitant	105	26.0
Educational attainment		
Illiterate	63	15.6
Primary school	239	59.2
Secondary school	102	25.2

Note. **Source:** primary data, September, 2022.

Level of knowledge of Hepatitis B Virus infection

The first objective of this study was to determine the knowledge regarding HBV infection among youths admitted in IRC. It was achieved through 20 items comprising awareness, signs, transmission, prevention, and treatment of HBV infection. Table 2 shows responses to the knowledge items about HBV infection. Over 70% of respondents knew that HBV can be acquired at any age, and is transmitted through unprotected sex and sharing sharp objects or toothbrushes. Over 60% recognized jaundice as the HBV infection symptom. Over 65% knew that HBV can be transmitted vertically and that an asymptomatic carrier can infect others. However, over 50% believed that HBV-infected people could be recognized by simply looking at them. Almost 70% of respondents believed that HBV can be transmitted through shaking hands. Over 70% thought that sharing clothes or utensils with an infected person can also transmit the infection. Over 80% responded that there are drugs that can completely cure chronic HBV infection, while over 90% responded that HBV infection always requires treatments to cure.

The correct answers to the knowledge items scored 1, while the wrong or unknown was scored 0. The total knowledge score for each participant ranged from 0 to 18. The mean knowledge score was 10.58 (*SD* = 2.86). Therefore, a score of 11 was considered the cut-off value for categorizing participants into good (≥11) or poor knowledge (<11). Figure 1 depicts levels of knowledge among respondents of this study. Two hundred and forty-two respondents (59.9%) had a good level of knowledge whereas 162(40.1%) had a poor level of knowledge

Table 2: Responses of youth in IRC to HBV infection knowledge items

Knowledge items	**Correct answers**	
	n	%
1. Have you ever heard of a disease called HBV infection?	407	100.0
2. HBV is acquired at any age.	321	79.5
3. Jaundice is a sign of HBV infection**.**	247	61.1
4. You can tell when people have HBV Infection by looking at them.	187	46.3
5. HBV can be transmitted by sharing clothes with an infected person.	107	26.5
6. You can catch HBV by shaking hands with an infected person.	123	30.4
7. HBV is transmitted by having unsafe sex with an infected person.	298	73.8
8. You can catch HBV by sharing utensils with an infected person.	87	21.5
9. You can catch HBV by sharing a toothbrush with an infected person.	325	80.4
10. HBV is transmitted by sharing sharp objects with infected people.	319	79.0
11. HBV can be transmitted vertically.	269	66.6
12. Even an asymptomatic infected person can transmit HBV to others.	274	67.8
13. Having HBV infection can lead to liver cancer.	293	72.5
14. Having HBV infection can lead to death.	335	82.9
15. HBV infection can be prevented by using a condom during sex.	313	77.5
16. Having good hand hygiene can prevent you from HBV.	69	17.1
17. There is post-exposure prophylaxis for HBV infection prevention.	299	74.0
18. There is a vaccine for HBV.	285	70.5
19. HBV infection always requires treatments.	37	9.2
20. Some drugs can completely cure chronic HBV infection.	86	21.3

Note. **Source:** primary data, September, 2022.

Figure 1: The level of knowledge regarding HBV infection among youth in IRC

Note. **Source:** primary data, September 2022.

Level of Attitude Toward HBV Infection

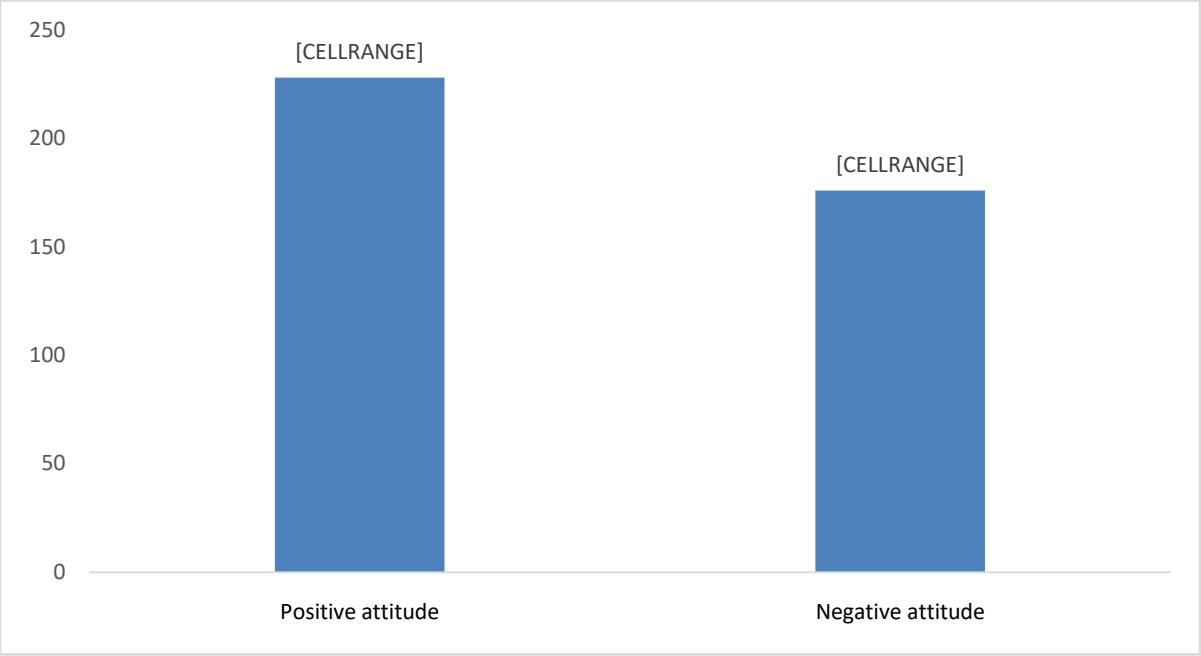
The second objective of this study was to assess attitude towards HBV infection among youths admitted in IRC. It was addressed through nine Likert's scale items comprising beliefs, feelings and behaviors towards HBV infection. Responses to the attitude toward HBV infection items are demonstrated in Table3. Over 90% gave responses that indicate positive attitudes in most of the attitude items. They were concerned about being infected with HBV and agreed that being HBV-positive would make them sad. They said that it is important to know their HBV status. They also agreed that they would take prophylaxis after a suspected exposure and would pay 15, 000 Rwf for the HBV vaccine. Over 80% of respondents agreed that it is important to know the HBV status of your sex partner and that the HBV vaccine is safe and effective. However, only 53.6% of the respondents agreed that they would share a dining table with an HBV-infected person. Attitude scores ranged from 20 to 45 with a mean attitude score of 39.01 (*SD* = 4.96). A score of 39 was taken as the cut-off value for categorizing respondents as having negative attitudes (<40) or positive attitudes (≥40). Figure 2 displays the levels of respondents' attitudes. Positive attitudes were demonstrated by 228 (56.4%) whereas 176 (43.6%) showed negative attitudes.

Table 3: Responses of youth in IRC to HBV attitude items

Attitude items	Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%
1. I am concerned about being infected with HBV.	11	2.7	13	3.2	9	2.2	110	27.2	264	64.6
2. It is important to know my HBV status.	5	1.2	4	1.0	4	1.0	135	33.4	256	63.4
3. I would share a dining table with HBV-infected people.	68	16.8	118	29.2	9	2.2	75	18.6	134	33.2
4. It is important to know the HBV status of your sex partner.	14	3.5	28	6.9	13	3.2	113	28.0	236	58.4
5. I would take prophylaxis after a suspected exposure to HBV infection.	7	1.7	9	2.2	6	1.5	121	30.0	261	64.6
6. Being infected with HBV would make me sad.	4	1.0	10	2.5	7	1.7	121	30.0	262	64.9
7. I would seek treatment after testing HBV-positive.	1	0.2	2	0.5	3	0.7	125	30.9	273	67.6
8. HBV vaccine is effective and safe.	14	3.5	16	4.0	37	9.2	105	26.0	232	57.4
9. I would pay 15,000 Rwandan francs for the HBV vaccine.	11	2.7	18	4.5	11	2.7	121	30.0	243	60.1

Note. **Source:** primary data, September 2022.

Figure 2: The level of attitude toward HBV infection among youth in IRC



Note. **Source:** primary data, September 2022.

Level of Practice Towards HBV Infection

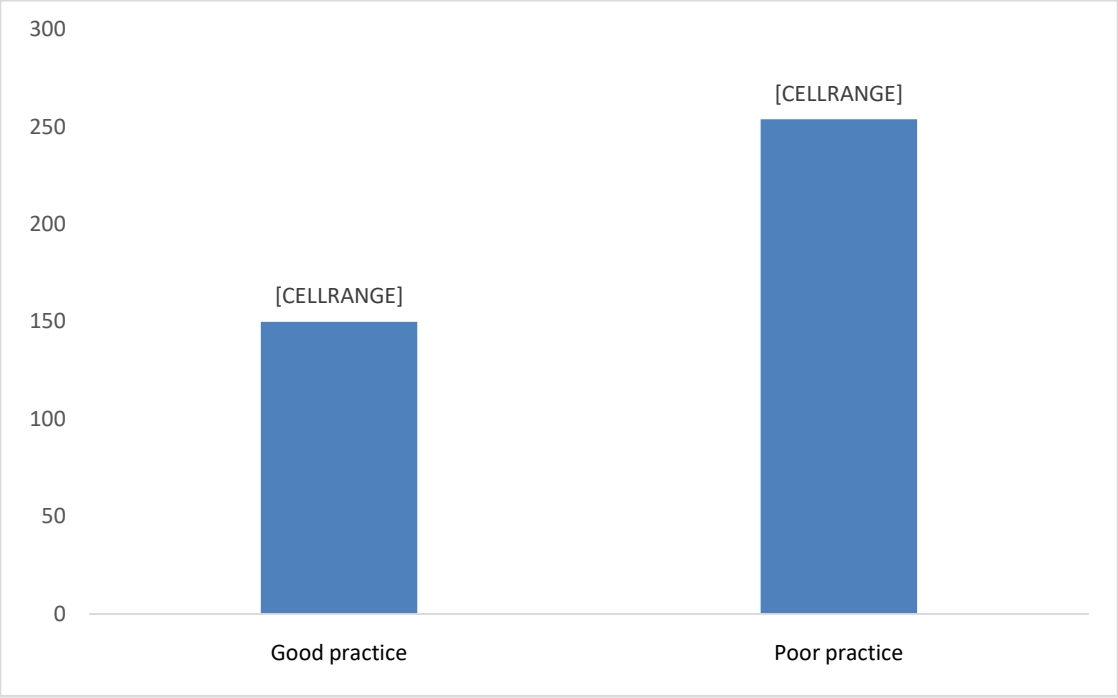
The third objective of this study was to determine preventive practices. It was addressed through five items comprising actual actions taken to prevents HBV infection. Responses to HBV preventive practice items are presented in Table 4. Around 96% do not share toothbrushes with others, whereas 81.2% do not share sharp objects with others. However, 65.8% have never taken an HBV test, 73.5% have never got vaccinated, and only 12.6% have completed all doses of the HBV vaccine. For the five practice items, answers that reflect good practice were scored 1, while the response that reflects poor practice scored 0. Practice scores ranged from 0 to 5 with a mean score of 2.51 (*SD* = 1.12). The mean practice score of 3 was considered as the cut-off value for categorizing respondents into good (≥3) or poor practice (<3). Figure 3 displays levels of HBV preventive practices. A hundred and fifty respondents (37.1%) had good practice whereas 254 (62.87%) showed poor practice.

Table 4: Responses of youth in IRC to HBV preventive practice items

Practice items	**Yes**		**No**	
	n	%	*n*	%
Do you share a toothbrush with others?	13	3.2	391	96.8
Do you share sharp instruments with others?	76	18.8	328	81.2
Have you ever tested for HBV?	138	34.2	266	65.8
Have you ever got an HBV vaccine?	107	26.5	297	73.5
Have you taken three doses of the HBV vaccine?	51	12.6	353	87.4

Note. **Source:** primary data, September 2022.

Figure 3: The level of preventive practice against HBV infection among youth in IRC.



Note. **Source:** primary data, September 2022.

Factors Associated With Preventive Practice Against HBV Infection

The fourth objective of the present study is to determine factors associated with preventive practice against HBV infections among youths in IRC. Bivariate analysis was conducted by using Chi square tests, while the multivariate analysis was conducted by using binary logistic regression analysis. Table 5 presents factors associated with the level of preventive practice against HBV infection. Age group and knowledge were significantly associated with the level of practice. Respondents aged between 18 and 25 years were more likely to have poor practice than respondents in the 26 to 35 years of age group (χ^2 (1, N = 404) = 10.34, $p < .05$). Similarly, respondents with poor knowledge were more likely to have poor practice than those with good knowledge (χ^2 (1, N = 404) = 10.13, $p < .05$). The level of attitude was not significantly related to the level of practice.

Table 5: Factors associated with HBV preventive practice among youth in IRC

Characteristics	Practice against HBV infection				χ^2 value	*p* value
	Good		Poor			
	n	%	*n*	%		
Age groups					**10.34**	**0.001**
18 – 25	65	30.0	152	70.0		
26 – 35	85	45.5	102	54.5		
Marital status					1.99	0.158
Single	105	35.1	194	64.9		
Cohabitant	45	42.9	60	57.1		
Educational attainment					4.47	0.107
Illiterate	16	25.4	47	74.6		
Primary school	95	39.7	144	60.3		
Secondary school	39	38.2	63	61.8		
Knowledge					**10.13**	**0.001**
Poor	45	27.8	117	72.2		
Good	105	43.4	137	56.6		
Attitude					0.815	0.367
Negative	61	34.7	115	65.3		
Positive	89	39.0	139	61.0		

Note. **Source:** primary data, September 2022.

Table 6 demonstrates a binary logistic regression model to identify independent predictors of the level of preventive practice toward HBV infection. Factors that were significantly associated with practice in bivariate analysis were considered in multivariate analysis. Respondents aged 26 to 35 had an 80% (1.80 – 1) higher probability of performing preventive action against HBV than the younger age group (A*OR* = 1.80, p = 0.005, 95% *CI* = [1.19, 2.73]). Similarly, respondents with a good level of knowledge had 1.84 times more likely to have good practice than those with poor knowledge (A*OR* = 1.84, p = 0.006, 95% *CI* = [1.19, 2.84]).

Table 6: Logistic regression model of predictors of practice against HBV infection among youth in IRC

Variables	Adjusted Odds Ratio	95 C.I.	*p*
Age			
18 - 25	Reference		
26 - 35	1.80	[1.19, 2.73]	**0.005**
Knowledge			
Poor	Reference		
Good	1.84	[1.19, 2.84]	**0.006**

Note. **Source:** primary data, September 2022.

Discussion

This study has examined the levels of knowledge, attitude, and preventive practice towards HBV infection. This study has also investigated factors associated with preventive practices against HBV infection. Most of the respondents in this study demonstrated a satisfactory positive attitude toward HBV infection. However, they lack enough knowledge to effectively execute preventive practices. Results of this study showed that 60% respondents had overall good level of knowledge. this proportion is lower than that obtained in a study among market traders in Lagos , Nigeria, where 80% showed good knowledge (Adejimi et al., 2021). Lower proportion of respondents with good knowledge were obtained among households in Malaysia (36.9%) (Rajamoorthy et al., 2019), patients and their attendant in Bangladesh (22.1%) (Sultana & Imtiaz, 2020), and internet users in Saudi Arabia (20.5%) (Elbur et al., 2017). The variation in proportion of respondents with good level of knowledge may be attributed to the difference in study populations and locations. Although, 60% of respondents obtained at least 11 knowledge score out of 19 score in this study, multiple misconceptions regarding HBV were found. For example, around 70% believed that HBV transmits through sharing clothes and utensil, or shaking hands, and over 50% thought that infected people can be recognized with a naked eye. Additionally, over 80% believe that there is a cure for HBV. These findings indicate the incompleteness of HBV-related knowledge among youth in Iwawa Rehabilitation Center (IRC). These gaps were also found among high school students in Hohoe, Ghana (Amedonu et al., 2020), and Sudanese population in Khartoum (Kheir et al., 2022). The incompleteness of knowledge is of a great concern as it affects the efficacy in performing preventive practices including early diagnosis and vaccination. In this study, slightly higher than half (56.4%) of respondents showed positive attitude. Similar results were obtained among waste collectors in Penang Island, Malaysia (53.6%) (Maideen et al., 2020), market traders in Nigeria (51.8%) (Adejimi et al., 2021), and pregnant women in Gondar, Ethiopia (54%) (Gebrecherkos et al., 2020). More satisfying results were obtained among pregnant women in Kumasi, Ghana (Nsiah et al., 2020), and among healthy population in Saudi Arabia, where over 60% showed good attitude (Wedhaya et al., 2017). It is important to emphasize that, only 53.6% of respondents in this study agreed that they would share a dining table with an HBV-infected person. This finding indicates the social

stigmatization against HBV-infected people among youth in IRC. The stigma towards HBV-infected people is due to the fear of being infected, usually inflamed by the lack of knowledge on HBV transmission (Smith-Palmer et al., 2020). Comparable results were obtained in Lagos, Nigeria (Adejimi et al., 2021), among market traders, where only half of the study respondents agreed that HBV patients should be allowed in markets. These are also in line with results obtained in Cameroon, where only 21% agreed that they would share cooking utensils with HBV-infected people (Okonkwo et al., 2018). Only 37.13% showed good preventive practice against HBV infection in this study. These results indicate poor practice among the study respondent. This result is comparable to a study by Wedhaya et al. (2017) and Abdi & Salleh (2019), 34% and 32.4% had good practices, respectively. Lower proportions of respondents with the good practice were also obtained in the reviewed literature (Abongwa et al., 2016; Adejimi et al., 2021; Sultana & Imtiaz, 2020). Different results were obtained in the study conducted in Ghana, where 60% of the respondents showed good practice (Nsiah et al., 2020). The poor practice among respondents in this study was manifested through low HBV vaccination rate. Only 26.8% took at least one dose of the HBV vaccine while only 10.6% completed all doses. A significant number of respondents (91%) were found to be vaccinated in a study that was conducted among nursing students in Rwanda (Umuhoza et al., 2021). However, the higher vaccination rate among these students is the result of expanded program of HBV immunization by the Ministry of Health that targeted all health care workers and medical students in Rwanda. In 2018, 96% of healthcare workers in a tertiary hospital in Rwanda had already received all three doses of HBV vaccine (Muvunyi et al., 2018). The same types of initiatives, should also be designed to include youths in rehabilitation centers. Findings from this study also reinforced the influence of knowledge on preventive practice against HBV infection. Respondents with good level of knowledge were 1.84 times more likely to have good preventive practice than respondents with poor knowledge. These findings are also in line with KAP model theory. KAP model asserts that the only obstacle to adopting healthy behaviors is ignorance, and correcting this lack of knowledge can directly influence behaviors (Hou, 2014). A significant association between knowledge and practice was also found in studies conducted in Nigeria (Adejimi et al., 2021), Cameroon (Okonkwo et al., 2018), and in Saudi Arabia (Mubaraki et al, 2019). In the KAP model, “knowledge is the basis of behavior change, and attitude is the motivation power of behavior change” (Fan et al., 2018). The influence of attitude on HBV preventive behavior was documented by a study among market traders in Lagos, Nigeria (Adejimi et al., 2021). Contrastingly, the present study has failed to establish the significant relationship between attitude and preventive practice against HBV infection. The lack of association may have resulted from the significant skewness of the attitude score to the positive side. Attitude scores in this study ranged from 20 to 45 with a mean score of 39.01 (*SD* = 4.96). This implies a satisfactory level of positive attitude toward HBV infection among youths in IRC. Despite the level of attitude, marital status, and education level were also not significantly related to practice. Delinquent youth at the street are usually hard to be reached by public health programs. Public health institutions should take advantage of youth in rehabilitation center and provide disease

prevention services to the youth. Findings from this study pointed out the incompleteness of knowledge and inadequate level of preventive practices towards HBV among youth in IRC. The data also suggest the need for increasing HBV-related knowledge and providing HBV screening and vaccination services to the youths. To the best of the researcher's knowledge, this study was the first to investigate HBV infection among youth in a Rehabilitation Centers. However, the generalization of findings from this study is limited to only male delinquent youth in Rwanda. Therefore, a KAP study HBV infection among female youth admitted a Rwandan rehabilitation center is recommended. Nevertheless, a large scale studies with larger sample size are still needed to investigate the levels of knowledge, attitude and preventive practice related to HBV infection among youth in Rwanda.

Conclusion

Youth In Iwawa Rehabilitation Center generally demonstrated a partial knowledge regarding HBV infection. Despite the stigma against HBV-infected people, attitude towards HBV infection is generally good. They have also showed poor preventive practice against HBV infection. Based on the study results, the lack of knowledge is the major obstacle to the execution of healthy practices against HBV infection.

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