KNOWLEDGE AND ATTITUDE TOWARDS HEPATITIS B INFECTION AMONG ADULTS IN TAMALE IN THE NORTHERN REGION OF GHANA

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Abstract
The study aims to investigate knowledge and attitude towards hepatitis B infection among adults in Tamale, Ghana. A cross sectional study was conducted using self-administered structured questionnaire to assess participants' level of knowledge and attitude towards hepatitis B infection among adults in Tamale, Ghana. Data was collected from people who agreed to participate in the study. The study sample was 281 participants. Simple random sampling was used to recruit participants. Data was analysed using SPSS version 24 and study findings presented using text and tables. The study revealed that about half of the respondents had good knowledge on hepatitis B infection. There were even some knowledge gaps among the respondents who had good knowledge on the infection. The study also revealed that 63% of the respondents had good attitude towards hepatitis B vaccination. Those who did not vaccinate against hepatitis B indicated the cost and other reasons as the barrier for not vaccinating. Almost all the respondents indicated they will visit health facility for treatment in case they realise they are infected with hepatitis B. The study shows knowledge and attitude towards hepatitis B is not adequate. There is therefore the need to put in more measures to educate the public on hepatitis B in order to improve the public's knowledge and attitude towards hepatitis B infection.
Key words: Knowledge, attitude, hepatitis b, adults, Tamale, Ghana.

GANA'NIN KUZEY BÖLGESİ'NDEKİ TAMALE'DE YETİŞKİNLER ARASINDA HEPATİT B ENFEKSİYONUNA İLİŞKİN BİLGİ DÜZEYİ VE TUTUM

Bu çalışma, Gana'nın Kuzey Bölgesi'ndeki Tamale şehrinde yaşayan yetişkinler arasında Hepatit B enfeksiyonuna ilişkin bilgi düzeyleri ve tutumlarını incelemeyi amaçlamaktadır. Gana, Tamale'deki yetişkinler arasından seçilen kişilerin hepatit B enfeksiyonuna karşı bilgi düzeyi ve tutumlarını değerlendirmek için anket kullanılarak tanımlayıcı bir çalışma yapılmıştır. Çalışmaya katılmayı kabul eden kişilerden veriler toplanmıştır. Çalışma örneği 281 katılımcıdan oluşmaktadır. Katılımcıları çalışmaya dahil etmek için basit rastgele örnekleme yöntemi kullanılmıştır. Veriler SPSS 24.0 kullanılarak analiz edilmiş, çalışma bulguları metin ve tablolar kullanılarak sunulmuştur. Çalışma, katılımcıların yaklaşık olarak yarısının hepatit B enfeksiyonu hakkında yeterli bilgiye sahip olduğunu ortaya koymuştur. Enfeksiyon hakkında yeterli bilgiye sahip olanların bile bazı bilgi eksiklikleri vardır. Çalışma aynı zamanda katılımcıların %64'ünün hepatit B aşılamasına karşı iyi bir tutum sergilediğini de ortaya koymuştur. Hepatit B'ye karşı aşılama yapmayanlar, maliyeti ve aşılamanın önündeki diğer engelleri neden olarak belirtmiştir. Katılımcıların hemen hemen hepsi, hepatit B ile enfekte olduklarını fark ettiğinde tedavi için sağlık tesislerine başvuracaklarını söylemiştir. Çalışma, hepatit B'ye karşı bilgi ve tutumun yeterli olmadığını göstermektedir. Bu nedenle, hepatit B enfeksiyonuna karşı bilgi ve tutumu artırmak için halkı hepatit B enfeksiyonu hakkında daha fazla eğitmek, bunun için daha çok çaba gösterilmesi ve bu enfeksiyona karşı önlem alınması gerekmektedir.
Anahtar kelimeler: Bilgi, tutum, hepatit b, yetişkinler, Tamale, Gana.

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Introduction

Hepatitis B is caused by virus which affects the liver. It can cause both acute and chronic disease (1). The virus is gotten from coming contact with blood or similar fluids of individuals who are infected; during child birth from the mother, among individuals in a family through cut skin contact, mucous membrane discharges and saliva that have Hepatitis B Virus. Also, the virus is gotten from: unsafe sexual intercourse; transfusing infected blood and products of blood; infected medical items; and injecting drug users who share infected syringes and needles among themselves (2). The infection is a serious liver condition with high fatality. Globally, it is a major health concern. Death from this condition is usually from liver cancer and cirrhosis (2).

Globally about 257 million of the population are living with condition-hepatitis B surface antigen positive. The condition caused 887 000 fatalities in 2015. Most of the deaths are usually from complications like cirrhosis and liver cancer. The prevalence of hepatitis B is high in the WHO-West Pacific region (6.2%) and the WHO-African region which is 6.1% of adult population got infected. With the WHO East Mediterranean Region, the prevalence rate was about 3.3%, the WHO South-East Asia region was about 2%, WHO European region was about 1.6%, and WHO-American Region has 0.7% of its population infected (2).

Endemicity of hepatitis B is high in West Africa, where Ghana is situated. It has a highest prevalence rate in the world of 8% (3). In Ghana, Hepatitis B is considered to be of public health concern and requires greater attention (4). The estimated prevalence rate of chronic HBV infection in Ghana is 12.92% (5). Other researchers have also estimated that the prevalence rate in Ghana is about 10–15 % (6, 7). Hepatitis B can be prevented by taking vaccination. The vaccine was made known in 1982. It is 95% effective to prevent the infection. Globally in 2015, 84% of infants took the complete dose of the vaccine (1).

Africa put in much effort in preventing the infection. Data from African Health Observatory shows the vaccination among children in African rose to 72% in 2012 from 42% in 2005 (4). WHO recommended hepatitis B vaccine addition into the expanded programme on immunization (EPI) for globally in 1991 (8). Ghana delayed in implementing it. Ghana later introduced it in 2002. In Ghana, the immunization coverage for Hepatitis B among children as part of the EPI was 88% (9). The EPI schedule for Ghana recommends 3 doses of pertussis, diphtheria, tetanus, hepatitis B and haemophilus influenza type B at 6, 10 and 14 weeks (9).

Because of the perceived inadequate knowledge on Hepatitis infections, yearly on July 28, WHO and its partners celebrate World Hepatitis Day to help educate and change of attitude towards hepatitis. Africa regards hepatitis as a serious health problem (3).

Little researches have been conducted on knowledge and attitude of adults in developing countries especially Ghana. To ensure that the spread of and resultant deaths from Hepatitis B are reduced, it is essential to investigate knowledge level and the attitude on hepatitis B in adults to help in formulating policies and the implementation. The study thus seeks to assess level of knowledge among adults on hepatitis B infection, and also seek to investigate the attitude of adults on infection.

Methods

Study Design and Sample

The study is a cross sectional study. Quantitative methods were used. The research was carried out in 2018 in Tamale in Northern Ghana. Tamale is the Northern regional capital. It is the third biggest city in the country. It is situated at the centre of the region. It has an estimated population of 233252 people. This include 111109 males and 112143 females. The total size of land of tamale is estimated to be about 646 901 80 km^2. Due to its location, it serves as a centre for administrative and trading in Northern Ghana (33).

This study had a sample is 281 participants. The sampling technique used in this research was convenient sampling. Structured questionnaire was used in this study and it was adopted from Sami et al, and modified to suit this current study (10). The questionnaire consisted of three parts: demographic data, level of knowledge about hepatitis B, attitudes on hepatitis B infection. The questionnaires were administered randomly to adults in Tamale to fill after seeking informed consent from participants and retrieved immediately after they completed filling the questionnaire. Data collection was done in various hospitals, schools and any public place in Tamale where people agreed to participate. Statistical test and analysis was done using IBM SPSS Version 24. Pearson chi square test was conducted. The findings of this test indicated if there exist any variation with regard to the level of knowledge and the attitude on Hepatitis B Virus infection among gender, age groups and between the various educational backgrounds. P value less or equal to 0.05 showed there is significant difference. Results were illustrated on tables, texts and figures.

Scoring

For knowledge, respondents who scored from zero to five marks were described as having poor knowledge, those who had six to seven marks were described as having average knowledge, and those who got eight to 13 marks were described as having good knowledge.

For attitude, respondents who indicated they will visit health facility for treatment, screened for hepatitis B and took the vaccine and those who believed they could get infected with hepatitis B when exposed were classified as having good attitude. Those who will not visit health facility but will make use of other options like self-treatment, traditional healers and others, those who did not go for hepatitis B screening and did not also take the vaccine, and those who did not believe they can get infected with hepatitis B when exposed were classified as having bad attitude.

Ethical Considerations

The study was approved by Ghana Health Service in Ghana and Ankara Yildirim Beyazit University ethics board in Turkey in 2018.

Results

Demographic Data of participants

A total number of 281 people took part in this research; 52% males and 48% females. Mean age of the study participants was 23.9±5.28 years old, and ranged from 18 to 61years; 62% aged 18-24years, 38% aged 25years and above. Also, 63% had tertiary education, 33% had high school education, 1% had only primary education and 3% were illiterates.

Level of Knowledge on Hepatitis B

All research respondents (281) had awareness of hepatitis B before this study. Table 1 illustrates the respondents' distribution on correct answers regarding Hepatitis B virus infection. The participants who knew correctly that hepatitis B is viral was 74%, 68% correctly stated the condition could transmit via unprotected sex, 54% correctly stated a child could get the condition from the mother during childbirth. In addition, 74% correctly stated one could get the condition from sharing needles or syringes among drug users. More so, 79% correctly indicated it is transmittable from using same toothbrush with infected individual. Moreover, 10% correctly knew that hepatitis B does not always present with symptoms and 65% correctly stated it has the possibility of leading to liver cancer.

Table 1: Respondents' distribution on correct answers regarding hepatits B.

KNOWLEDGE ITEM	Correct(T) False (F)	Frequency*	%
Is hepatits B a Viral Infection?	T	208	74
Do persons get Hepatitis B from genes (heredity)?	F	142	51
Do persons acquire hepatits B from air -cough and/or staying together?	F	101	36
Do people get hepatits B from unprotected sexual intercourse?	T	192	68
Can the condition be gotten by child from mother during birth?	T	152	54
Can persons get hepatits B by using same spoons and bowls in eating?	F	85	30
Can persons acquire hepatits B by consuming food cooked by an infected person?	F	181	64
Do individuals get hepatits B by sharing needles and syringes among drug users?	T	207	74
Can persons acquire the condition through using same toothbrush with infected individual?	T	223	79
Can persons acquire Hepatitis B by shaking hands with an infected individual?	F	150	53
Does hepatits B always have symptoms?	F	29	10
Does hepatits B cause liver cancer?	T	183	65
If individual is infected with the condition but appear well, do you believe the individual can transmit the condition?	T	234	83

** The participants who gave correct answers*

Table 2 shows the total knowledge level between males and females on Hepatitis B. Generally, out of 281 respondents, 20.3% had poor knowledge, 27% had fair knowledge, and 52.7% had good knowledge. Of the 146 male respondents, 20% had poor knowledge, 22% had fair knowledge and 58% exhibited good knowledge. Also, of the 135 female respondents, 20.7% had poor knowledge, 32.6% had fair knowledge, and 46.7% had good knowledge. Pearson chi square on the knowledge with genders was 0.093. No significant difference was observed between gender and the knowledge level.

Table 2: Total knowledge level between males and females (n=281).

Variable		KNOWLEDGE LEVEL			Total	p value
		Poor knowledge	Fair knowledge	Good knowledge		
		No* (%)	No* (%)	No* (%)	No* (%)	
Gender of Participants	Male	29 (20.0)	32 (22.0)	85 (58.0)	146 (52.0)	0.093
	Female	28 (20.7)	44 (32.6)	63 (46.7)	135 (48.0)	
Total		57 (20.3)	76 (27.0)	148 (52.7)	281 (100.0)	

*Note: * row, ** column*

Table 3 illustrates the total knowledge on hepatitis B on various educational levels. Out of the 92 respondents (32.7%) who had High school education, 31.5% had poor knowledge, 33.7% had fair knowledge and 34.8% had good knowledge. Also, out of the 179 respondents (63.7%) who had Tertiary education, 12.8% had poor knowledge, 22.9% had fair knowledge and 64.2% had good knowledge. Pearson chi square between knowledge and educational levels was $p<0.001$. Significant difference was seen between educational levels and knowledge level. People with Tertiary education had better knowledge compared to other educational levels.

Table 4 shows the total knowledge level between the age groups. Out of the 175 respondents (62.3%) aged 18 to 24 years, 23% had poor knowledge, 29% had fair knowledge, and 48% had good knowledge. Also, of the 106 respondents (37.7%) aged 25years and above, 16% had poor knowledge, 23.6% had fair knowledge, and 60.4% had good knowledge. Pearson chi square on knowledge and age groups was p=0.123. No significant difference was seen on age groups and the knowledge level.

Table 3: Total knowledge level among various educational levels.

Variable		KNOWLEDGE LEVEL			Total	p value
		Poor knowledge	Fair knowledge	Good knowledge		
		No (%)*	No (%)*	No (%)*	No (%)*	
Level of Education	Illiterate	4 (57.1)	2 (28.6)	1 (14.3)	7 2.5%	< 0.001
	Primary School Education	1 (33.3)	2 (66.7)	0 (0.0)	3 (1.1)	
	High School Education	29 (31.5)	31 (33.7)	32 (34.8)	92 (32.7)	
	[a]Tertiary education	23 (12.8)	41 (22.9)	115 (64.2)	179 (63.7)	
Total		57 (20.3)	76 (27.0)	148 (52.7)	281 (100)	

*Note; * row, ** column; aTertiary education includes certificate program, Diploma Program and Bachelor Degree program*

Table 4: Total level of knowledge among the age groups (n=281).

Variable		KNOWLEDGE LEVEL			Total	p value
		Poor knowledge	Fair knowledge	Good knowledge		
		No (%)*	No (%)*	No (%)*	No (%)**	
Age of Participants	18-24 years	40 (23.0)	51 (29.0)	84 (48.0)	175 (62.3)	0.123
	25 years and above	17 (16.0)	25 (23.6)	64 (60.4)	106 (37.7)	
Total		57 (20.3)	76 (27.0)	148 (52.7)	281 (100.0)	

*Note; * row, ** column*

Attitude towards hepatitis B infection

Table 5 illustrates respondents' positive attitude on Hepatitis B infection. Two hundred and twenty-one respondents representing 79% believed getting infected with hepatitis B when exposed, 68% got screened for hepatitis B before and 63% took the vaccination.

A total of 177 respondents representing 63% of the total respondents took the vaccination. Out of 177 participants who took the vaccination, 17.5% took one dose, 11.3% took two doses, and 71.2% took the complete dose (3 doses). Among the participants who took the vaccination, majority of them (71.2%) completed three does.

Table 5: Distribution of participants about positive attitude towards hepatitis b.

Item	Yes(Y)*	No.	%**
Do you believe you can get infected with the infection?	Y	221	79
Do you know hepatitis B vaccination centre?	Y	227	81
Do you think if children less than 2 years old need to be vaccinated against hepatitis B?	Y	178	63
Do you think if healthy people need a hepatitis B vaccination?	Y	249	89
Have you tested for hepatitis B before?	Y	192	68
Have you taken the hepatitis B vaccine?	Y	177	63

**Yes is positive attitude*
***Percentage of positive attitude*

Various reasons were given by some respondents for not taking the vaccine. About 37% stated they have not taken the vaccine. Out of the 104 participants (37%), 40 participants (38.5%) indicated that they have no reason for not taking the vaccine, 26 respondents (25%) indicated the cost of the vaccine, 10 participants (9.6%) indicated they are yet to vaccinate, 6 participants (5.8%) indicated their ignorance on place of vaccination, 5 participants (4.8%) indicated there are no opportunities available for them to vaccinate, 6 respondents (5.8%) indicated that they will not vaccinate because they do not have hepatitis B symptoms, 4 participants (3.8%) indicated that they do not have time to go for the vaccine, 3 respondents (2.9%) indicated that they do not have adequate knowledge on the vaccination, two respondents (1.9%) indicated fear of testing positive, one respondent (1%) indicated that it is not important to vaccinate and the remaining one respondent (1%) indicated that he/she cannot vaccinate because he/she tested positive for hepatitis B. Respondents indicated what they will do if they realise they have hepatitis B infection. About 94% indicated they will visit health facility for treatment.

Discussion

Knowledge on hepatitis B infection

This research revealed that all 281 participants (100%) had heard of hepatitis B infection. This is in line with the finding by Ul Haq et al (2012) in Pakistan that showed that about 98% had awareness on hepatitis B (11). This however contradicts study finding by Ngaira et al (2016) in Kenya conducted among pregnant women which revealed that only 50% had heard of this infection (12).

Also, the research showed majority of participants (74%) correctly indicated the causative organism of the infection is virus. There is no significant difference among the genders and various age

groups on whether the infection is viral or not (p=0.425 and p=0.120) respectively. However, there was significant difference among the various educational levels which showed that people with higher education was more aware the infection is caused by virus (p-value<0.001). This is similar to the study findings by Adjei et al (2016) among clinicians in the Eastern region of Ghana which showed that 93.7% of the participants knew that hepatitis B is cause by virus (13). The very high knowledge among physicians and midwives may however be due to the fact that they may have better knowledge on medical conditions compared to non-health professionals. A study finding by Sami et al (2015) in Egypt among school children aged 11 to 17 years however contradicts the current study which revealed that only 26.3% knew that hepatitis B is caused by virus (10).

More to the above, the study showed that about 51% correctly knew hepatitis B cannot transmit through genes. This implies that about half of participants have misconception that the condition is genetic. There was no significant difference seen between males and females with regards to genes as a means of transmission (p=0.442). However significant difference was seen among various educational levels and ages groups (p=0.011 and p=<0.001) respectively. Participants with higher education had more awareness that hepatitis B is not genetic. Also, respondents aged 18 to 24 years were more aware that it is not genetic. The finding is in line with study finding by Bladh F & Ohlson E. (2015) carried out in Vietnam among students which showed that only 38.2% knew correctly the condition cannot transmit through genes (14).

In addition, the study showed that only 36% knew hepatitis B does not transmit via air. This means most of respondents believed hepatitis B can be transmitted through air. No significant difference was seen between the genders (p=0.061). However, significant difference was seen among various educational levels and age group (p=<0.001 and p=0.001) respectively. Participants with tertiary education and people aged 25years and above were more aware that hepatitis B is not air-borne compared to others. The study finding is similar to the results by Abdulai et al (2016) on the condition on knowledge among pregnant ladies in Kintampo, Ghana which showed about 77% of the participants thought hepatitis B is air-borne (15).

More so, most participants (68%) correctly knew hepatitis B can transmit through unsafe sexual activities. There was no significant difference observed on genders and various age groups on whether hepatitis B is transmitted sexually or not (p=0.950 and p=0.266) respectively. However, there was significant difference among various educational levels (p=0.001). Participants with tertiary education were more aware that hepatitis B is transmitted through unsafe sexual practices compared to the other educational levels. The results are similar to the results by Brouard et al (2013) about the condition in France which showed that 69.7% of the respondents knew the condition is gotten via unprotected sexual activities (16). The study findings contradict the findings by Hyun et al (2017) in USA which showed that only 23.3% knew the infection can be gotten from unsafe sexual intercourse (17).

Furthermore, about half of participants (54%) correctly believed hepatitis B can transmit from mother to

child during birth. No significant difference was observed between genders, various age groups and the educational backgrounds on whether the condition can transmit from mother to baby or not (p=0.496, p=0.933 and p=0.055) respectively. This study finding is in line with the findings by Ganczak et al (2016) in Poland which showed that 50% correctly indicated hepatitis B can transmit from mother to baby during birth (21). The study finding contradicts the finding by Han et al (2017) in China which indicated that only 20% indicated correctly the condition can transmit from mother to baby during birth (18).

Additionally, only 30% participants correctly knew hepatitis B does not transmit by using same bowls or spoons for food. There was no significant difference seen among genders and educational levels (p=0.828, and p=0.525) respectively. However there was significant difference among the age groups (p=0.017). Respondents aged 18 to 24years had better knowledge on this compared to the other age group. The result of this study is in line with study finding by Mtengezo et al (2016) in Malawi showed only 13.5% correctly indicated hepatitis B does not transmit via using same spoons or bowls for food (19). This result is also in line with the finding by Hyun et al (2017) in USA which revealed that only 28.7% correctly hepatitis B cannot be transmitted through sharing of spoons and bowls for food (17).

In furtherance, most participants (64%) correctly indicated one cannot get infected by consuming food cooked by infected individual. There was no significant difference observed between genders and various educational backgrounds (p=0.795 and p=0.481) respectively. However, there was significant difference among ages (p=0.012). Respondents aged 18 to 24years were more aware that one does not acquire the infection by consuming food cooked by an infected person than respondents aged 25 years and above. The study finding is similar to the finding by Shah et al (2013) in New York among West African immigrant women which showed that 62% of the respondents correctly knew that one does not acquire the infection by consuming food cooked by hepatitis B positive patient (20). The study finding however contradicts the finding by Sami et al (2015) in Egypt which showed that only 11% knew correctly that one cannot get infected by consuming food cooked someone who is infected (10).

Moreover, majority (74%) correctly indicated using same needles and syringes among injecting drug users can transmit hepatitis B. There was no significant difference between genders and various age groups (p=0.228 and p=0.593). However, there was significant difference among various educational levels (p=0.001). Respondents with tertiary education had more awareness the condition can transmit via using same needles or syringes compared to other educational background. The study result is similar to the study by Ganczak et al (2016) in Poland that showed that 86.6% knew that sharing needle can transmit hepatitis B [21]. The study finding however contradicts the finding by Abongwa et al (2015) in Cameroon which showed that only 25.8% correctly indicated that hepatitis B could transmit via sharing of sharp items (22).

To add to the above, majority of the respondents (79%) correctly indicated using same toothbrush with an infected can transmit hepatitis B. No significant difference was observed among

genders, educational levels and the various age groups (p=0.968, p=0.399 and p=0.210) respectively. This study result is similar to finding by Shah et al (2013) in New York among West African immigrant women which revealed that 67% of the respondents correctly indicated the condition can be gotten from using same toothbrush with infected person (20). The research however contradicts the findings by Sami et al (2015) in Egypt that showed that only 47.6% correctly indicated hepatitis B can be gotten via using same toothbrush with infected person (10).

About half of respondents (53%) correctly indicated hepatitis B cannot be gotten by holding or shaking hands with hepatitis B infected individual. No significant difference was seen among genders, the various age groups and educational backgrounds (p=0.331, p=0.067 and 0.105) respectively. This finding is similar to finding by Yuan et al (2017) among newly recruited military in China which revealed that 60.2% correctly indicated hepatitis B infection cannot be gotten through handshake (23). This study finding however contradicts the finding by Sami et al (2015) in Egypt which revealed that only 30% correctly indicated hepatitis B virus does not transmit via handshake (10).

Only few respondents (10%) correctly knew that hepatitis B does not always present with symptoms. No significant difference was seen between males and females, various age groups and the educational backgrounds respectively (p=0.714, p=0.433 and p=0.567). The study result is similar to finding by Ul Haq et al (2012) in Pakistan which showed that only 18.4% correctly knew that hepatitis B does not usually present with symptoms (24).

Most respondents (65%) correctly stated hepatitis B could lead to cancer of the liver. No significant difference was seen among genders and various age groups (p=0.326 and p=0.803) respectively. There was significant difference among the various educational levels (p=0.012). Respondents with tertiary background had more awareness hepatitis B can cause liver cancer compared to others. The research result is similar to finding by Vaseem et al (2015) in India that revealed that 72.3% believed the infection could lead liver cancer (25). The study finding contradicts the finding by Ul Haq et al (2012) in Pakistan which revealed only 27.9% believed that this infection could lead to liver cancer (24).

This study again revealed 83% of the respondents correctly knew that an infected individual who appears well can still transmit virus to others. No significant difference was recorded among genders and the various age groups (p=0.439 and p=0.929) respectively. There was significant difference among the various educational backgrounds (p<0.001). People with tertiary education background were more aware that infected individuals who appear well may still transmit the infection compared to the other educational backgrounds. The study result however contradicts the finding by Shah et al (2013) in New York among West African immigrant women which revealed that only 57% knew correctly infected individual who appear well can still transmit the virus to others (20).

Generally, the study revealed that 52.7% participants exhibited good knowledge on the infection. Out of this, 30.2% were males and 22.4% were females. Also, out of the 52.7%, 0.4% was illiterate, 11.4% had high school education and 40.9% had tertiary

education. In addition, out of the 52.7%, 29.9% aged 18 to 24 years, and 22.8% aged 25years and above. No significant difference was recorded between knowledge levels and genders, and various age groups (p=0.093 and p=0.123) respectively. There was however significant difference between knowledge levels and various educational levels (p<0.001). The study shows individuals with higher education background are likely to be more aware and knowledgeable of hepatitis B. This is not surprising since people who are more educated are in a better position to access more sources of information and learn more about the condition. Despite the relatively good knowledge among about half of respondents, some knowledge gaps were detected: about 90% of the respondents was ignorant of potential asymptomatic nature of hepatitis B infection; 49% had misconception the condition is genetic; more than half of the respondents had the misconception it can be gotten via air; about 70% of participants had misconception that hepatitis B can transmit through using same bowls for food; and more than 40% thought the condition can transmit via handshake. The relatively high knowledge level of hepatitis B among the respondents in the research is similar to findings by Ganczak et al (2016) in Poland that revealed that 76.6% of the respondents had good knowledge on hepatitis B infection with some knowledge gaps related to the asymptomatic nature and not aware of the complications (21). This research is also similar to study by Gürakar et al (2014) on public awareness of the condition in Turkey conducted among hepatitis B infected patients that showed that 60% of participants exhibited good knowledge on hepatitis B modes of transmission and 72% knew the consequences of hepatitis B infection (27). The findings of this study however contradict the study findings by (28) in Upper West Region of Ghana (29), in Obuasi, Ghana (30) and in Nigeria which showed that knowledge level on hepatitis B among respondents was low.

Attitude towards Hepatitis B among participants

Majority (79%) believed they can acquire the infection when exposed. No significant difference was recorded between this relating to genders and various age groups (p=0.526 and p= 0.849) respectively. However, there was significant difference between this and various educational levels (p= 0.001). People with tertiary education background was more aware that they can get infected when exposed compared to other educational backgrounds. The study finding is similar to the finding by Baig et al (2015) on hepatitis B among health workers and medical students in India which showed that 59.9% of the respondents believed they can get infected when exposed [25]. The finding of the study however contradicts the finding by Ul Haq et al (2012) revealed 79.7% of the participants thought they cannot acquire the infection even when exposed (24).

Also most of the respondents (81%) indicated that they knew where to go for the hepatitis B vaccine. No significant difference was recorded between this relating to genders and various age groups (p= 0.314 and p= 0.290) respectively. However, there was significant difference between this and various educational levels (p<0.001). Respondents with tertiary education were more aware of where to get the hepatitis B vaccine compared to other

educational backgrounds. The result is similar to the finding by Bladh & Ohlson (2015) in Vietnam that showed that 82% of the respondents knew where to go for the vaccination (14).

Majority of the participants (63%) believed that children less than two years need hepatitis B vaccination. Also, about 89% participants knew healthy people need hepatitis B vaccine. The research results are similar to the study findings by Bladh & Ohlson (2015) in Vietnam which revealed that 64.8% and 97.9% of the respondents respectively believed that children less than two years and healthy people need hepatitis B vaccine (14).

Additionally, majority of the respondents (68%) tested for hepatitis B. Significant difference was seen among genders, and various educational levels ($p = 0.025$, and $p < 0.001$ respectively. Females exhibited better attitude towards hepatitis B testing compared to males. People with tertiary education had better attitude towards hepatitis B testing compared to other educational backgrounds. However, no significant difference was seen between the ages ($p = 0.075$). This study finding is in line with the results by Hyun et al (2017) which showed 75% of respondents had gone for hepatitis B screening (17). The result however contradicts the finding by Abdulai et al (2016) in Kintampo, Ghana which revealed that only 9.2% knew their hepatitis B status (15).

In furtherance, most respondents (63%) took the hepatitis B vaccination. Most of participants took the complete dose (3 doses) and few others took one or two doses. No significant difference was recorded on hepatitis B vaccination and genders ($p = 0.167$). However, there was significant difference between various educational levels and age groups ($p < 0.001$ and $p = 0.009$) respectively. Participants with tertiary education and people aged 18 to 24 years had better attitude towards the vaccination compared to other educational background and the other age group respectively. The study result is similar to the finding by Adekanle et al (2015) on the condition in Nigeria which revealed that 65% participants vaccinated against hepatitis B vaccine (31). This result is in line with the finding by Brouard et al (2013) in France which revealed that people with higher education and people aged 18 to 30 years had better attitude towards hepatitis B vaccination (16). The study finding however contradicts the finding by Mutocheluh & Kwarteng (2015) on knowledge of hepatitis B among barbers in Kumasi, Ghana which revealed that only 2% had taken the hepatitis B vaccine (32).

Additionally, 37% of the respondents indicated that they did not take the hepatitis B vaccine for various reasons. Majority of the respondents who did not take the vaccine indicated that they had no reasons for not vaccinating and also cost of vaccine. Other reasons they indicated were that they do not have the opportunity to vaccinate, will not vaccinate because there are no symptoms, yet to vaccinate, no adequate knowledge on vaccination, do not know where to get the vaccination, not important, tested positive so cannot vaccinate and no enough time. The finding is similar to result by Abongwa et al (2015) in Cameroon which revealed majority of participants indicated the cost as the main barrier for not going for the vaccine (22).

Furthermore, 94% of respondents indicated visiting a health centre for treatment if diagnosed of hepatitis B. This is similar to finding by Vaseem (2015) in

India that revealed 90.7% of the respondents will visit health facility when diagnosed of hepatitis B (25). It is also in line with the study by Abongwa et al (2015) in Cameroon which showed that 76.3% of the respondents will seek treatment from health facility when they realise they are infected (22).

About half of the respondents (50.5%) indicated they will first discuss with a doctor if they realise they are infected. The study finding is similar to the finding by Vaseem (2015) in India which revealed 63.8% of respondents will discuss their condition with the physician if they realise they are infected (25). The study finding however contradicts the finding by Ul Haq et al (2012) that revealed approximately half of participants (47.1%) will first discuss it with their spouse if they realise they are infected (24).

Lastly, 42.3% indicated fear of transmitting the diseases to family and friends and fear of death 36.3% as their most worry when diagnosed of hepatitis B. The study finding is similar to the result from Ul Haq et al (2012) in Pakistan that revealed 31.5% of the respondents indicated fear as what they will worry most when they realise they have hepatitis B (24).

Conclusion

The study was conducted to investigate the level of knowledge and the attitudes towards hepatitis B infection among adults in Tamale, Ghana. The research indicated about half of participants exhibited good knowledge. There was however some knowledge gaps especially in relation to some of the routes of transmission and majority of participants were ignorant the condition does not always present with symptoms. This research also indicated 63% participants had good attitude towards hepatitis B vaccination by vaccinating against hepatitis B. Those who did not vaccinate against hepatitis B indicated the cost and other reasons as the barrie for not vaccinating. Almost all participants indicated visiting health centre for treatment in case they are diagnosed of the condition. This means that about half of the respondents do not have good knowledge on the condition and 37% have also not taken the vaccine.

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