



International Journal of Hepatology & Gastroenterology

Research Article

Bridging the Gap between Knowledge about Viral Hepatitis Infection (B&C) and their Prevalence among Pregnant Women - @

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Submitted: 06 June 2017 **Approved:** 22 June 2017 **Published:** 23 June 2017

Citation this article: Makhlouf EM, Khaled SAA, Tosson MM. Bridging the Gap between Knowledge about Viral Hepatitis Infection (B&C) and their Prevalence among Pregnant Women. Int J Hepatol Gastroenterol. 2017;3(1): 007-0013.

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ABSTRACT

Background & Objective: Worldwide, nearly 350 and 125 million persons have chronic hepatitis B & C virus (HBV & HCV) infections, respectively. This study aimed to bridge the gap between knowledge of HBV & HCV infections and their prevalence among pregnant women, through assessing the impact of an educational intervention on knowledge of pregnant women toward HBV & HCV infections.

Methods: The study was a quasi-experimental one, 100 pregnant women were enrolled in the study they were in third trimester. Structured interviewing sheet, laboratory investigations, educational interventions and pre & posttest formats were utilized for the study.

Results: 89% of women exposed to surgical operations versus 11% not exposed. The Knowledge of women about method of viral hepatitis B & C infections were, 63% in pretest versus 99% in posttest formats know that viral hepatitis infection could be transmitted by transfusion of infected blood or fluids. 36% in pretest versus 92% in posttest format know that viral hepatitis infection could occur during pregnancy and childbirth. 37% in pretest versus 100% in posttest format know that drug administration and abuse are important methods of transmission of viral hepatitis (B&C) infection.

Conclusion and Recommendations: Pregnant women had knowledge deficit about viral hepatitis B and C infections. The educational interventions had a positive impact on their knowledge, the findings point to the need for more programs concerned with prevention and control of HBV&HCV infections tailored to needs; these programs have to be suitable for the cultural values of the communities.

Keywords: Viral hepatitis; Educational intervention; Pregnant women

INTRODUCTION & OBJECTIVES

Background

Nowadays, HBV & HCV infections become a worldwide health problem and a dangerous rapidly spreading infectious disease. According to the World Health Organization (WHO) about 3% of the global population is currently infected with HCV. Hence more than 170 million people are infected with HCV with 3-4 million people newly infected each year. Furthermore, about 350 thousand persons die from complications of HCV infection every year, putting viral hepatitis (B&C) infections among the top important causes of mortality [1-3]. In the Middle East, Egypt has the highest prevalence of HCV infection worldwide. Recently, many studies among blood donors documented a decrease in HCV prevalence; however, this decline was not attributed to treatment strategies [4-6]. This was probably due to increased awareness and improved socioeconomic status [7].

The hepatitis caused by HBV and HCV is extremely obscure; symptoms appear only in 35.0% of those infected by HBV and in 25.0% of those infected by HCV. There are 3-main routes for transmission of HBV & HCV, namely vertical, horizontal and sexual. In vertical transmission pregnant woman transmit the infection to her baby during pregnancy or childbirth. Horizontal route is mainly through transfusion of infected blood or blood products, transplantation of organs from an infected person, hemodialysis, and drug abuse or administration [8-10].

Although there is available vaccine for HBV however effective control of HBV & HCV still a global health challenge. This was attributed to limited access to vaccination, screening and treatment in endemic areas, which was mainly due to poverty [11].

Many studies showed high prevalence of HBV & HCV infections; however most of the populations have poor awareness of their modes of transmission, signs & symptoms, complications, and treatment modalities. This in turn leads to ineffective preventive measures [12-15]. Pregnant women prepared for labor are at high risk to contract hepatitis viral infection in the same time infected mothers can transmit HBV & HCV to their babies during labor or even during pregnancy. Also pregnant women can transmit infection to her husband, children, and medical or paramedical staff during labor. Accordingly this sector of the population has to be targeted with

educational programs to increase their knowledge about HBV&HCV infections [16].

Aim of the Study

This study aimed to investigate how can we bridge the gap between knowledge and awareness of pregnant women toward HBV&HCV infections and their prevalence, through assessing the impact of an educational interventions on laboring women.

SUBJECTS & METHODS

Study design & subjects

A quasi-experimental design was utilized for the study. A convenient sample of 100 pregnant women who were in third trimester and prepared for labor was included in this study. A written informed consent was obtained from each participant.

Tools of data collection

Structured interviewing sheet: A Questionnaire was prepared by the researchers related to the following:

Sociodemographic data: Demographic variables such as age, address, and educational level, were assessed.

Medical history: Previous major surgery, sexually transmitted diseases or history of renal or liver disease all of this from patient file.

Family history: History of viral hepatitis and history of sexually transmitted disease.

Questionnaire to collect data related to hepatitis included a pretest (a questionnaire about knowledge of hepatitis (B & C) viral infections among the study group. This included methods of transmission of infection and risk factors for hepatitis C & B infections, such as, direct contact with blood products, needle stick injuries, unsafe handling and collection of needles and sharps, body piercing, body fluid splash, vaccination coverage, history of STDs and tattooing. All study participants (pregnant woman) were assigned a unique identifying number to maintain their confidentiality.

All of the above mentioned data were collected before the educational interventions. Next, an educational package and brochure about hepatitis (B & C) for laboring women was prepared and delivered to the study participants.

A posttest including a questionnaire about knowledge of hepatitis (B & C) and its methods of prevention after educational interventions to evaluate the impact of educational interventions on knowledge of laboring women.

Laboratory investigations

As a part of routine preparation of pregnant women for labor, blood samples were obtained from each participant for the estimation of HBV (HBsAg) and HCV (anti-HCV antibodies).

PROCEDURES

Revision of the study tools

Tools of the study were submitted to a panel of three medical and nursing expertises in the field of obstetrics and gynecology to test the content validity. Modifications were done according to the panel judgment on the clarity of sentences and the appropriateness of content.

Pilot study

After revision, and for necessary modifications in the study tools, the questionnaire was piloted on a group of 10 pregnant women; those were not included in the study. They were asked to fill out the questionnaire and return it back with their comments and criticism. Minor changes were then made to the final material and any necessary modifications were done.

HBV & HCV assay

After taking medical & family history, blood sample (5 ml) was taken from each laboring woman for separation of the sera. The serum was analyzed for assay of anti HCV and anti HBV using the commercially available ELISA kits. A positive anti HCV case was arranged for Polymerase Chain Reaction (PCR), liver functions and liver enzymes testing to confirm the diagnosis and to avoid false positive results. All of this was done as a part of routine laboratory investigations for laboring women.

Follow up

Participants who show positive anti HCV or anti HBV were scheduled for follow up to repeat the tests and to have abdominal US scan. Study participants were requested to return in 2 weeks to obtain their laboratory results.

Educational interventions

Firstly, demographic data, medical and family history were collected from the study participants. Then a pretest questionnaire was delivered to each participant to assess their knowledge about HBV& HCV viral infections before the start of the educational interventions.

The educational interventions were given during the third trimester of pregnancy in 5 sessions, 1st two sessions for theoretical part which include knowledge about hepatitis (B & C) and its methods of prevention, signs and symptoms, when to contact the doctor to ask for medical help. 3rd session concerned with how to deal with infected person in the house. In the 4th session the researchers discuss misconception and common wrong practices about hepatitis (B & C). At the end of the fourth session, the researchers distribute learning package to the pregnant women which include all hepatitis (B & C) information discussed before. Lastly, the 5th session was used for ending the study and answers to the questionnaire as posttest format each session about 50 minutes.

Ethical considerations

The anonymity and confidentiality of the responses, voluntary participation and the rights to refuse participation were emphasized. The purpose, procedure, risks and benefits of the study were explained to each participant and a written informed consent was obtained from laboring women. There was no risk at all during application of the research. To ensure confidentiality, this research was carried out by using codes instead of names and participants' data were used only for research purpose.

STATISTICAL ANALYSIS

Research hypothesis

There is a knowledge deficit about HBV & HCV among pregnant women. The awareness of pregnant women regarding viral hepatitis infection will increase after receiving the educational interventions.

Analysis of the collected data

The statistical analysis was done using SPSS-16 statistical software package and excel for figures. The content of each tool was analyzed, categorized by the investigator. Data were presented using descriptive statistics in the form of number and percentages for qualitative variables. Means and standard deviations were applied for quantitative variables. X² test was used to compare women responses in pre and posttest format. Statistical significance was considered at (*P* < 0.05), high significance if less than 0.01, or insignificant if more than 0.05.

Results Characteristics of the study participants

Table 1 shows socio- demographic characteristics of the studied groups, the results revealed that the average age of the sample was 17 years, the age range from 16 to 40 years. As regarding to residence 73% lived in urban areas compared to 27 % in rural areas. In respect to an educational level, more than half of women had secondary education.

Table 2 illustrates the obstetrical history of the study participants, about 34% had normal vaginal delivery compared to 66% had CS. 31% of participants were multiparous women and 27% were

Table 1: Distribution of the study sample according to socio-demographic characteristics.

Characteristics	N = (100)	
	No.	%
Age		
< 30 Years	30	30
30≤40 years	34	34
≥ 40 years	36	36
Average age	17 years	
Educational level		
Illiterate	30	30
Read & write	34	34
Basic education	36	36
Secondary education	30	30
University	34	34
Residence		
Urban	73	73%
Rural	27	27%

primigravidas. A relatively high proportion of women 58% had history of previous abortions.

Figure 1 showed results of the laboratory investigations for viral hepatitis among the study subjects there were 4% and 3% with anti HCV & PCR positive. Only 1% of participants had positive anti HBV.

Risk factors for HBV& HCV infections among the study group

Table 3 summarizes the exposures of women for previous operations, 89% were exposed to surgical operations versus 11% not exposed. Also, the table showed exposures of women to dental interventions such as filling operations, or take off a fierce or teeth. There were 60% exposed to filling operations, or take off a fierce or teeth versus 40% not exposed. As regarding to the exposure of pregnant women to blood transfusions, there were 16% exposed to blood transfusions versus 84% not exposed.

All our participants were married, so assessment of sexual transmission of infection was through family history. Enquiring about extra-marital relations was inappropriate in our cohort due to religious and regional values of participants.

Figure 2 showed that 16% & 21% of women made tattoo, and wash m, versus 84% and 79% not made, respectively.

Knowledge of the study participants regarding HBV& HCV infections

Table 4 summarizes the knowledge of women about methods of transmission of viral hepatitis B & C infections in pre & posttest formats of the study tool. 63% of women in pretest versus 99% in posttest formats know that the viral hepatitis infection could be transmitted by transfusion of infected blood or blood products, also by contact with other body fluids from an infected person. Only 51% of women in pretest format realize that transplantation of organs from an infected person to healthy person can transmit infection, furthermore 54%, 55% & 52% only know that sex with infected partner, drug abuse and wound contamination are important routes of transmission of infection.

Table 2: Distribution of the study sample according to Obstetrical history.

Obstetrical history	Study sample = (100)	
	No	%
Mode of delivery		
Normal	34	34
C.S	66	66
Parity		
Primi	27	27
P2-5	42	42
Multi	31	31
Previous abortions:		
No	42	42
Yes	58	58
Menstruation days:		
2	5	5
3	11	11
4	53	53
>4	31	31

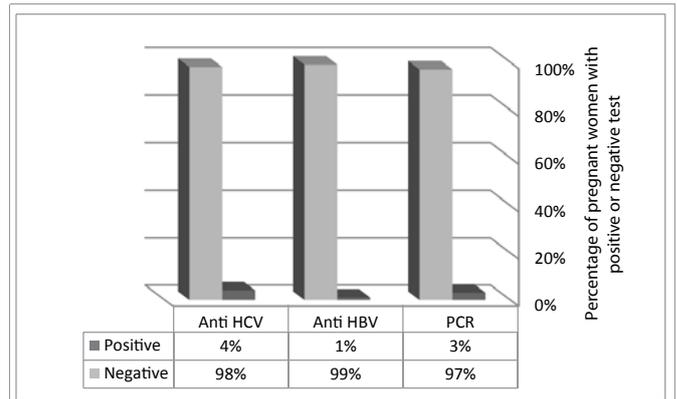


Figure 1: Results of laboratory investigations for viral hepatitis among the study subjects

Table 3: Exposure to previous operations and blood transfusion among the study group.

Variables	Sample n = 100	
	Frequency	Percent
*Exposure to previous operations		
Exposed	89	89%
Not exposed	11	11%
*Exposure to filling operations, or take off a fierce or teeth		
Exposed	60	60%
Not exposed	40	40%
*Exposure to Blood transfusions		
Exposed	16	16%
Not exposed	84	84%
*Sexual transmission	0	0%

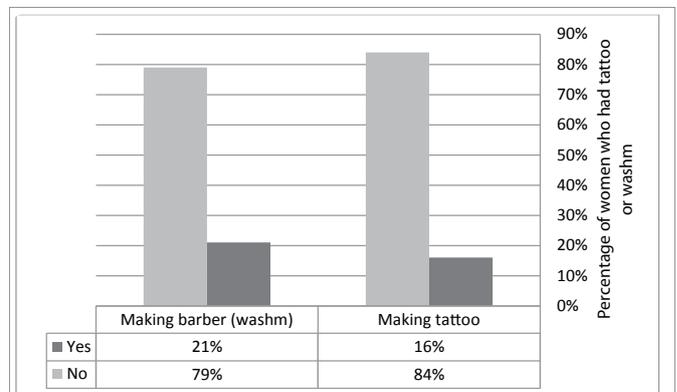


Figure 2: Making tattoo or wash m among the study group.

46% versus 64% of women in pretest and posttest formats know that viral hepatitis infection could occur through anal or oral route. Also, 36% in pretest versus 92% in posttest formats know that viral hepatitis could be transmitted during pregnancy and childbirth. 37% in pretest versus 100% in posttest formats know that the viral hepatitis transmission could happen during drug administration. As regarding hemo or peritoneal dialysis only 42% realize that it can transmit viral hepatitis infection before the intervention.

Interestingly, there were statistically significant differences ($p < 0.05$) between knowledge of pregnant women about modes of transmission of viral hepatitis B&C infections in pretest and posttest formats (after the educational interventions).

Sources of knowledge of the study participants regarding HBV& HCV infections

Table 5 summarizes the sources of women knowledge about methods of viral hepatitis B & C infections. 39% of women have their knowledge from school, 25% from doctors, 31% from media and 29% from nursing staff. However, there was no documented knowledge from any research member.

Table 4: Knowledge of women about modes of transmission of viral hepatitis B & C infections before and after the educational interventions (pretest& posttest formats).

Mode of infection	Pretest n=100		Posttest n=100		X2 Test	p-value
	No	%	No	%		
Infections transmitted by transfusion of infected blood or fluids.						
Yes	63	63%	99	99%	49.43	0.000*
No	34	34%	1	1%		
Infections transmitted by transplantation of organs from an infected person to healthy person.						
Yes	51	51%	100	100%	66.32	0.000*
No	49	49%	0	0%		
Sex with infected partner						
Yes	54	54%	98	98%	61.4	0.000*
No	46	46%	2	2%		
Drug abuse						
Yes	55	55%	93	93%	40.55	0.000*
No	45	45%	7	7%		
Intravenous and wounds contaminated with infected tools or machines.						
Yes	52	52%	95	95%	48.86	0.000*
No	48	48%	5	5%		
Anal and oral infection.						
Yes	46	46%	92	92%	50.46	0.000*
No	64	64%	8	8%		
Infection occurred during pregnancy and childbirth.						
Yes	36	36%	92	92%	68.62	0.000*
No	64	64%	8	8%		
Biting insects.						
Yes	31	31%	96	96%	85.08	0.000*
No	69	69%	4	4%		
Dialysis.						
Yes	42	42%	88	88%	47.99	0.000*
No	58	58%	12	12%		
Food contamination.						
Yes	47	47%	95	95%	60.3	0.000*
No	53	53%	5	5%		
Drug administration						
Yes	37	37%	100	100%	93.82	0.000*
No	63	63%	0	0%		

(*) Statistically significant at p < 0.05

Table 5: Sources of women knowledge about transmission of viral hepatitis B & C infections in pre & posttest formats.

Women knowledge	Pretest n = 100		Posttest n = 100		X ² Test	P-value
	Frequency	Percent	Frequency	Percent		
School						
Yes	39	39%	39	39%	0.646	0.624
No	61	61%	61	61%		
Doctors						
Yes	25	25%	25	25%	3.03	0.22
No	75	75%	75	75%		
Nursing staff members						
Yes	29	29%	29	29%	0.413	0.814
No	71	71%	71	71%		
From the media						
Yes	31	31%	31	31%	1.58	0.454
No	69	69%	69	69%		
From research member						
Yes	0%	0%	10000%	100%	2	0.000*
No	10000%	100%	0%	0%		

(*) Statistically significant at p < 0.05 the media as (television - Radio - posters - brochures)

DISCUSSION

In the present study, prevalence of HBV& HCV infections among the study participants was relatively lower than in other studies [17-21]. However, this prevalence does not reflect prevalence of HBV&HCV among general population; this was mainly due to small sample size of the current study. Furthermore, the study participants reflected only one sector of population (pregnant women); also the age range of women was from 16-40, which does not represent various age groups. On the hand nearly one quarter of women was from rural areas and the vast majority of them were from urban areas. HBV&HCV were shown to be more prevalent in rural residency. As regard to education, more than half of the study participants have high school education, HBV&HCV infections were found more prevalent in lower levels of education [22-26].

In accordance with other studies [27-30], the present study showed that pregnant women do not have enough basic knowledge on viral hepatitis B&C infections. Only about one-third of participants had good knowledge about methods of transmission of viral hepatitis B & C infections by infection during pregnancy & childbirth, drugs and drug abuse. In the same time, more than half of women had good knowledge about methods of transmission viral hepatitis B & C infections by dialysis, transfusion of infected blood or fluids, intravenous injections and contaminated wounds.

On the other hand, our findings about lack of knowledge on viral hepatitis among pregnant women were contradictory to Debes et al. They reported higher levels of knowledge in Tanzania, where 70% & 60% of participants showed adequate understanding of HBV complications and transmission routes. Furthermore, 85% of their participants realize that working in the health care setting increases risk of HBV infection [31]. Our findings were also contradictory to studies in Ethiopia, Nigeria and Sudan that showed 62%, 94% and 90% of participants have enough knowledge about HBV infection, respectively [32-34]. This conflation between our results and these

studies was not astonishing. This is because of differences in target population among the studies. In this study the target population was pregnant women regardless of their education or jobs while health care workers were the target population in the other studies. Health care workers are in a position that allows easy access to information and resources about viral hepatitis.

The present study revealed that the main source of women's knowledge about viral hepatitis was from schools and the media, however research members have no role in enhancing knowledge of pregnant women about viral hepatitis, these findings were similar to other studies [35,36].

Why pregnant women had lack of knowledge about viral hepatitis B&C infections? This could be related to the women themselves as related to their age, residency or level of education. However, from our findings, this was mainly related to deficient and ineffective role of the health system represented in doctors, para-medical staff, and medical researchers in improving people's knowledge about viral hepatitis. Furthermore, non-specific preventive measures such as hand cleaning, disposable medical equipment and proper sterilization are still inadequate in some health care facilities.

The present study showed statistically significant improvements in knowledge of pregnant women about viral hepatitis B&C after implementation of the educational interventions, $P < 0.001$. This finding was in agreement with other researchers who test the impact of educational interventions on knowledge about AIDS and showed positive impact [37].

CONCLUSION AND RECOMMENDATIONS

Findings of the present study concluded that pregnant women were deficient in knowledge about viral hepatitis B&C. The educational interventions had a positive impact on their knowledge. These findings gave a satisfactory answer to the question how can we bridge the gap between knowledge about viral hepatitis B&C and their prevalence? Moreover these findings point to the need for more educational interventions that should be tailored to needs, and approaches that are suitable for the cultural values of the communities. These educational campaigns have to emphasize on effective methods for prevention of viral hepatitis B&C infections. In addition these programs have to target different sectors of the population including those working in the health system.

According to the findings of this study we recommended intensification of mass media educational programs about viral hepatitis B&C. This is because it is accessible to the vast majority of the population; also it does not require a particular setting where information could be delivered to subjects at work and homes. Meanwhile, media education can deliver scientific information in a manner that suits different ages, educational and cultural levels, or even in a funny way that suits children.

ACKNOWLEDGEMENTS

The authors wish to thank all the study subjects, who volunteered participation in the study, without their patience and co-operation this study would have been impossible.

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