

## Impact of an educational intervention on knowledge about viral hepatitis infection (B&C) among pregnant women: Al Dawadmi, Saudi Arabia.

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### ABSTRACT

Worldwide, about 350 million persons have chronic hepatitis B virus (HBV) infection, and about 125 million have been infected with hepatitis C virus (HCV), putting viral hepatitis B and C among the world's greatest infectious disease health problems. In Saudi Arabia, viral hepatitis ranked the second most common reportable viral disease in 2007. **The aim of the study:** was to assess the impact of educational intervention on knowledge of pregnant women toward viral hepatitis B & C infections, also, know the prevalence of viral hepatitis among laboring women in Al Dawadmi. **Study Design:** A quasi-experimental design was utilized for the study. **Subjects:** A convenient sample conduction of 100 pregnant women who were in third trimester and prepared for labor was included in this study. **Setting:** The study was conducted at Al-Dawadmi general hospital, Riyadh, Saudi Arabia. **Tools:** Structured interviewing sheet, Laboratory investigations and Pre & Posttest, (a questionnaire about knowledge of hepatitis (B & C) and its methods of prevention): **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 group versus 99% in posttest group know that the viral hepatitis infection method is occurred by blood or fluids of a human being infected. 36% in pretest group versus 92% in posttest group know that the viral hepatitis infection method occurred during pregnancy and childbirth. 37% in pretest versus 100% in posttest group know that the viral hepatitis infection method during drugs and drug abuse. **Conclusion and Recommendations,** the women at Al- Dawadmi, Riyadh, Saudi Arabia had knowledge deficit about viral hepatitis B and C. The educational intervention had a positive impact on their knowledge, the findings point to the need for more programs on health education tailored to needs, and approaches that are suitable for the cultural values of the communities..

**Key words:** viral hepatitis -educational intervention

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### INTRODUCTION

Worldwide, about 350 million persons have chronic hepatitis B virus (HBV) infection, and about 125 million have been infected with hepatitis C virus (HCV), putting viral hepatitis B and C

among the world's greatest infectious disease health problems. Infection with hepatitis C virus (HCV) is a common global cause of chronic liver disease, which is also true in Saudi Arabia. HCV prevalence in Saudi Arabia varies in different provinces being highest in the

Western and Southern provinces. Most of the studies among blood donors documented a decrease in HCV prevalence, probably due to increase awareness and improved socioeconomic status (Krishnan P, Dick F, Murphy E. (2007) and (Al-Muhanna FA: 1995).

The World Health Organization (WHO) estimates that 3% of the global population is currently infected with HCV (Al Faleh FZ, et.al,2000) . Hence more than 170 million people are infected with HCV with 3-4 million people newly infected each year. The term hepatitis describes inflammation of the liver. Hepatitis may be caused by alcohol, drugs, autoimmune diseases, metabolic diseases, and viruses. (Al Faleh FZ, et.al,1999). Hepatitis C is a disease of the liver caused by the hepatitis C virus (HCV). 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. In Saudi Arabia, viral hepatitis ranked the second most common reportable viral disease in 2007, with almost 9000 new cases diagnosed in that year. (Chatterjee C,et.al,2000). In Saudi Arabia HCV antibody testing was used then for research purpose-tests for detection of HCV antibodies were implemented as a mandatory prescreening assay in blood banks in late 1992. (Memish ZA, Knawy BA, A. (2010)) Transmission of HCV is mainly parenteral through blood or blood products transfusion and puncture with infected needles. More than 45% of patients with H2CV infection have no identifiable risk factors. Djeriri K, et al. (2005). Prevalence of HCV among high risk groups such as patients with chronic renal failure on hemodialysis is 43.2%-72.3% among adults (El Zayadi A, et al, 1999): and 45% among children (El Zayadi A, et al, 1996) and (Krishnan P,

Dick F, Murphy E., 2007) . In Saudis patients with sexually-transmitted diseases HCV prevalence of 15.9% was reported (Hisham O, A, 1995) and (Memish ZA, Knawy BA, A. 2010).among Saudi blood donors were reported as 2.74 %, with more than 500,000 being already infected with HCV. The Riyadh Central Blood Bank reported that HCV prevalence among Saudi blood donors in 1997 was 1.3% , this dropped to 1.2% in 1998 and 0.8% in 1999 (Huraib SO, 2000) . The use of more specific screening assays for detection of HCV antibodies, together with improved socioeconomic conditions and general public awareness. (Akbar HO ,2000). Beside measures currently taken by the Ministry of Health; more community education and better disinfection of medical equipment's (i.e.: Dental) in certain institution, may further help elimination of possible infection source. (Klepp KI.,2004) and (Mohei El-Din A.,2010)

### **Significance of the Study:**

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Al -dawadmi governorate is a rural area and there was no pervious educational intervention about viral hepatitis infection and majority of women lacking scientific knowledge about viral hepatitis infection.

### **Aim of the study:**

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This study aimed to

1. Assess the impact of educational intervention on knowledge of pregnant women toward viral hepatitis B & C infections.
2. Investigate the prevalence of viral hepatitis among laboring women in Al Dawadmi.

### **Research hypothesis:**

women who will receive educational interventions will have increasing the

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awareness regarding viral hepatitis infection than those who don't.

**SUBJECTS & METHOD:**

Study Design: A quasi-experimental design was utilized for the study.

**Setting:**

The study was conducted at Al-Dawadmi general hospital, Riyadh, Saudi Arabia.

**Subjects:**

A convenient sample conduction of 100 pregnant women who were in third trimester and prepared for labor was included in this study, from Al-Dawadmi general hospital, Riyadh, Saudi Arabia. An official permission was obtained from the director of the Al-Dawadmi general hospital, Riyadh, Saudi Arabia. An written informed consent was obtained from each participant.

**Tools of data collection:**

Questionnaire was prepared by the researchers related to the following:

**[1] Structured interviewing sheet**

- 1-Sociodemographic data: Demographic variables such as age, address, educational level, will be assessed.
- 2- Medical history: Previous major surgery, Sexually transmitted disease or history and Renal or liver disease all of this from patient file.
- 3-Family history: history of viral hepatitis and history sexually transmitted disease.
- 4-Questionnaire to collect data related to hepatitis, Included Pretest (a questionnaire about knowledge of hepatitis (B & C) and its methods of prevention) before educational interventions to evaluate the knowledge of pregnant women, Also

educational package for laboring women about hepatitis (B & C), brochure about hepatitis (B & C).

Posttest included (a questionnaire about knowledge of hepatitis (B & C) and its methods of prevention) after educational interventions to evaluate the knowledge of laboring women.

The questionnaire was assessed established to risk factors for hepatitis C & B, as well as direct contact with blood born articles, 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.

**[2] Laboratory investigations:**

Blood sample was obtained from each participant during labor, A routine obstetrics department. This was allowing for the estimation of HBV (HBsAg) and HCV (anti-HCV antibodies). An enzyme immunoassay (EIA) was performed this is to estimate anti-HCV antibody.

**Procedures:**

The study started from October 2013 to December 2013. Tool was submitted to a panel of three medical and nursing expertise in the field of obstetrics and gynecology to test the content validity, modification was carried out according to the panel judgment on clarity of sentences and the appropriateness of content. Necessary modification was done in the study tool. After taking medical & family history, blood sample (5 ml) was taken from each (laboring women) for separation of the sera. A serum was analyzed for assay of anti HCV and HBV using the commercially available ELISA kits. A positive case was arranged for PCR, liver

function and liver enzymes testing to confirm the diagnosis and to avoid false positive results. Each participant was 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. Factors influencing the risk to a laboring woman over a lifetime include the number and types of blood contact experienced.

#### **Educational interventions:**

The educational intervention were given during third trimester from pregnancy in 5 sessions, 1<sup>st</sup> two sessions for theoretical part which include knowledge about hepatitis (B & C) and its methods of prevention, signs and when to contact the doctor to ask for medical help, 3<sup>rd</sup> session concerned with how to deal with infected person in the house, 4th session the researchers discuss misconception and common wrong practice 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, 5<sup>th</sup> session used for ending the study and answer the questionnaire as posttest format each session about 50 minutes.

#### **Ethical Consideration:**

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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 women and obtained a written informed consent from laboring women. There was no risk at all during application of the research, Confidentiality, this research was carried out by using of codes of names and information was used only for the research work.

#### **Pilot study**

After revision, and for Necessary modification in study tool ,the questionnaire was piloted on a group of women represent 10% of the sample who were excluded from the actual study and 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.

#### **Statistical Analysis**

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 and chi square. Means and standard deviations were applied for quantitative variables. Statistical significance was considered at ( $P < 0.05$ ), high significance if less than 0.01, or insignificant if more than 0.05.

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**Results:**

**Table 1: Distribution of sample according to socio-demographic characteristics of the sample, (n=100).**

Age	N= (100)	
	No.	%
<30 years	30	30
30- <40 years	34	34
≥ 40 years	36	36
Average age	17 years	
Education level		
Illiterate	0	0%
Read & write	4	4%
Basic education	11	11%
Secondary education	55	55%
University	30	30%
Residence		
Urban	73	73%
Rural	27	27%

**Table 1** shows socio- demographic characteristics of the studied groups, all the sample from Saudi women, 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, As regarding to educational level more than half of women had secondary education because AL Dawadmi is rural area and university education was started later.

**Table 2: Distribution of sample according to Obstetrical history (n=100).**

Mode of delivery	Study=(100)	
	No.	%
Normal	34	34
C.S	66	66
Parity:		
Primi	27	27
Multi	73	73
Previous abortions:		
No	12	12
Yes	88	88
Menstruation days:		
2	5	5
3	11	11
4	53	53
>4	31	31

Table 2 illustrates the obstetrical history, about 34% had normal vaginal delivery compared to 66% had CS.

**Table 3: Distribution of sample according to exposure for previous operations and blood transfusion (n=100)**

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

Table 3, Summarizes the exposure of women for previous operations, 89% exposed to surgical operations versus 11% not exposed.

Also, showed that the exposure of women to 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. Otherwise, the exposure of women to blood transfusions, there were 16% exposed to blood transfusions versus 84% not exposed.

**Table 4 : Distribution of sample according to making tattoo, barber (n=100)**

Making tattoo, barber	Sample n=100	
	Frequency	Percent
<b>Making tattoo</b>	16	16%
<b>Not make</b>	84	84%
<b>Making barber (washm)</b>	21	21%
<b>Not make</b>	79	79%

Table 4, Showed that the women how made tattoo were 16%, and making barber 21%. Versus 84% and 79% not make respectively.

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**Table 5: Knowledge of women about mode of viral hepatitis B & C infections in pre & posttest sample (n=200)**

Mode of infection	Pretest n=100		Posttest n=100		X <sup>2</sup> Test	p-value
	No	%	No	%		
<b>Infections Occurred by blood or fluids of infected human being.</b> Yes No	63 34	63% 34%	99 1	99% 1%	49.43	0.000*
<b>Removal of organs from an infected person to healthy person.</b> Yes No	51 49	51% 49%	100 0	100% 0%	66.32	0.000*
<b>Partner sex an infected person</b> Yes No	54 46	54% 46%	98 2	98% 2%	61.40	0.000*
<b>Participate in the needles (drug abuse).</b> Yes No	55 45	55% 45%	93 7	93% 7%	40.55	0.000*
<b>Intravenous and wounds contaminated with machines infected.</b> Yes No	52 48	52% 48%	95 5	95% 5%	48.86	0.000*
<b>Anal and oral infection.</b> Yes No	46 64	46% 64%	92 8	92% 8+%	50.46	0.000*

(\* *Statistically significant at p<0.05*)

Table 5, Summarizes the Knowledge of women about method of viral hepatitis B & C infections in pre & posttest women, 63% in pretest group versus 99% in posttest group know that the viral hepatitis infection method is occurred by blood or fluids of a human being infected, also Regarding removal of organs from an infected person to healthy person, partner sex with an infected person, Participate in the needles with other people (drug abuse), Intravenous and wounds contaminated with machines infected and Anal oral infection, There were statistically significant differences between the pretest and posttest group.

**Table 6: Cont. Knowledge of women about mode of viral hepatitis B & C infections in pre & posttest sample (n=200)**

Mode of infection	Pretest n=100		Posttest n=100		X <sup>2</sup> Test	p-value
	No	%	No	%		
<b>Infection occurred during pregnancy and childbirth.</b>						
Yes	36	36%	92	92%	68.62	0.000*
No	64	64%	8	8%		
<b>Biting insects.</b>						
Yes	31	31%	96	96%	85.08	0.000*
No	69	69%	4	4%		
<b>Dialysis.</b>						
Yes	42	42%	88	88%	47.99	0.000*
No	58	58%	12	12%		
<b>Food contamination.</b>						
Yes	47	47%	95	95%	60.30	0.000*
No	53	53%	5	5%		
<b>Drugs and drug abuse</b>						
Yes	37	37%	100	100%	93.82	0.000*
No	63	63%	0	0%		

(\* ) Statistically significant at  $p < 0.05$

Table 6, Summarizes that the cont. the Knowledge of women about method of viral hepatitis B & C infections in pre & posttest women, 36% in pretest group versus 92% in posttest group know that the viral hepatitis transmission during pregnancy and childbirth. 37% in pretest versus 100% in posttest group know that the viral hepatitis transmission during drugs and drug abuse

**Table 7: Sources of women knowledge about transmission of viral hepatitis B & C infections in pre & posttest sample (n=200)**

Women knowledge	Pretest n=100		Posttest n=100		X <sup>2</sup> Test	P value
	Frequency	Percent	Frequency	Percent		
<b>School</b>						
Yes	39	39%	39	39%	0.646	0.624
No	61	61%	61	61%		
<b>Doctors</b>						
Yes	25	25%	25	25%	3.03	0.22
No	75	75%	75	75%		
<b>Nursing staff members</b>						
Yes	29	29%	29	29%	0.413	0.814
No	71	71%	71	71%		
<b>From the media</b>						
Yes	31	31%	31	31%	1.580	0.454
No	69	69%	69	69%		
<b>From research member</b>						
Yes	0	0%	100	100%	2.00	0.000*
No	100	100%	0	0%		

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

Table 7, Summarizes that, the source of women knowledge about method of viral hepatitis B & C infections were about 39% from school, 25% from doctors, 31% from media and 29% from nursing staff.

**Table 8. Distribution of sample according to laboratory investigations: (n=100)**

laboratory investigations	Sample n=100	
	Frequency	Percent
<b>Anti HCV</b>		
Positive	2	2%
Negative	98	98%
<b>Anti HBV</b>		
Positive	1	1%
Negative	100	100%
<b>PCR</b>		
Positive	3	3%
Negative	100	100%

In Table 8, Showed that the laboratory investigations for viral hepatitis among the women there were 2% in Anti HCV, 1% Anti HBV and 3% PCR.

**Discussion:**

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The present study showed that the women at Al Dawadmi Hospital, Al-Riyadh, in Saudi Arabia, do not have enough basic knowledge on viral hepatitis. The present study revealed that the average age of the sample was 27 years, the age range from 16 to 40 years. As regarding to residence 73% lived in urban areas compared to 27 % in rural areas the majority of the studied women were living in urban areas. As regards to level of education, more than half of women had secondary education. In agreement with Mohei and Etemad (2010), who showed that the age range from 16 to 20 years. More than half of the sample were girls (57.0%), and lived in the rural areas (58.1%). In the present study, Only about one-third of them had overall satisfactory knowledge about method of viral hepatitis B & C infections by infection during

pregnancy , childbirth, Biting insects, Drugs and drug abuse. Meanwhile, slightly more than half of the women were had overall satisfactory knowledge about methods of viral hepatitis B & C infections by dialysis, treated by blood or fluids from human being infected, intravenous injection and wounds contaminated with infected machines. The reason for the lack of knowledge in the remaining women may be due to the hospital system which is enrolled in. In agreement with Soto-Salgado M, et al, (2011) who evaluated knowledge regarding transmission, clinical manifestations and prevention of viral hepatitis in Puerto Rico, the mean knowledge score significantly ( $P < 0.05$ ) increased with age, level of counseling received and number of sources of information. Health education must be focused on transmission and prevention methods, including the availability of a vaccine for HAV and HBV, especially

among those with chronic liver disease. **Zeeshan. et al., (2007)** observed that Moroccan still had a poor perception of the risk of HBV infection with regard to occupational blood exposure, such as needle stick injuries. In the present study, the low level of correct knowledge revealed in the present study agrees with what has been found by many other investigators. For instance, **Mohei and Etemad (2010)**, who made a study in Assiut, Egypt found that only one third of sample had clear knowledge of viral hepatitis, transmission and prevention, demonstrates low percentages of satisfactory knowledge at the pre-test. Meanwhile, statistically significant improvements in students' knowledge were revealed after implementation of the educational program,  $P < 0.001$ . In the present study, 36% in pretest group versus 92% in posttest group know that the viral hepatitis infection method during pregnancy and childbirth. 37% in pretest versus 100% in posttest group know that the viral hepatitis infection method during drugs and drug abuse. In agreement with **Mohei and Etemad (2010)**. **Trevisan A, and Paruzzolo P., (2000)** showed that non-specific preventive measures (hand cleaning, disposable medical equipment, educational campaigns and proper sterilization) are inadequate in some Moroccan health care facilities. **Mohei and Etemad (2010)**, who showed that A systematic program to screen pregnant mothers for hepatitis B and to vaccinate all newborns has greatly decreased new cases of hepatitis B. **Al-Muhanna . (1995)**, reported that higher levels of knowledge. Thus, in Tanzania, the knowledge about viral hepatitis and the mode by which the virus is transmitted was very high. About 96% of the sample who participated in the study had heard of the disease and around 90% knew about the main modes of

transmission. Similarly, most adults in Arusha region in Tanzania had heard the main viral hepatitis routes of transmission, and also knew the ways in which the virus was not transmitted to others. **Shobokshi (1999)**, reported that a number of reasons for the discrepancy between the results of the present study and some African and Western studies, which in turn would increase the level of awareness in the community.

### **Conclusion and Recommendations**

Conclusion and recommendation will be drawn from the findings of the present study, it is concluded that the women at Al-Dawadmi, Riyadh, Saudi Arabia were deficient in knowledge about viral hepatitis. The educational intervention had a positive impact on their knowledge, the findings point to the need for more programs on health education tailored to needs, and approaches that are suitable for the cultural values of the communities.

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