



## ROLE OF HEALTH EDUCATION INTERVENTIONS IN IMPROVING HEPATITIS E AWARENESS AMONG PREGNANT WOMEN

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### Abstract

**Background:** An higher risk of death and terrible consequences is associated with hepatitis E, one of the most prevalent infections that pregnant women face.

**Objective:** The aim was to determine how much health education interventions resulted in improving hepatitis E awareness among pregnant women.

**Methods:** This cross-sectional study was conducted at Gynae & Obstetric Department PUMHS Civil Hospital Nawabshah from April 2023-September 2023 and comprised of 80 pregnant females. Females with ages 17-45 years were included after taking informed written consent. We used SPSS 22.0 to analyze data. A chi-square test was employed to see whether there was a correlation between the participants' knowledge and perception.

**Results:** Pregnant females had mean age  $27.9 \pm 5.25$  years with mean BMI  $25.12 \pm 7.33$  kg/m<sup>2</sup>. Majority of the females 49 (61.3%) were literate. There were 34 (42.5%) cases had 2<sup>nd</sup> trimester of pregnancy, followed by 28 (35%) cases had 3<sup>rd</sup> trimester and 18 (22.5%) cases had first trimester. Among women, 78% had heard of Hepatitis E, 83% had known a person infected via viral infection, 55% didn't know it was caused by a virus, 42% knew it was spread through contaminated water and food, 50% knew it was spread by a blood transfusion, 60% knew it could be spread sexually, 41% knew it could be spread from mother to fetus, and 66% knew it was spread more in pregnancy. Only 40% of women thought that they were at risk of Hepatitis-E.

**Conclusion:** Our research shows that pregnant women have a decent understanding of hepatitis E, but that additional health education and immunization campaigns are needed to lower the disease's death toll.

**Keywords:** Pregnant Females, Hepatitis-E, Infection, Knowledge and Perception

## **INTRODUCTION**

Access to safe, inexpensive, and effective prevention, care, and treatment services for persons living with viral hepatitis should be a priority, according to the World Health Organization's (WHO) 2016 worldwide plan to limit the spread of viral hepatitis [1]. By 2030, the goals are to treat 80% of eligible individuals affected with viral hepatitis, reduce the number of hepatitis-related fatalities by 65%, and decrease the number of new cases of hepatitis by 90% [1]. About 1.34 million people died from viral hepatitis in 2015. Of those, 95% were caused by chronic hepatitis B and C infections, while the rest were caused by hepatitis A and E infections [1, 2]. When it comes to hepatitis E, estimates show that over 20 million new cases of the virus arise year, with 3.3 million of those people experiencing symptoms [3]. Nearly 44,000 people died in 2015 from HEV infections, making up around 3.3% of all deaths caused by viral hepatitis [3].

Acute outbreaks of HEV, an illness that may be spread by water and food, have the potential to occur in areas where sanitation is inadequate [1, 3]. There has also been evidence of transmission through transfusions and zoonotic infections [4, 5]. Supportive care is the mainstay of HEV infection management as no particular therapy is available at this time [1, 3]. Vaccination, better sanitation, and clean food and drink are all parts of a preventative strategy that aims to lower exposure [1]. Although it can occur, fulminant hepatitis is often caused by host-specific rather than virus-specific variables, and chronic liver disease is less likely to develop from HEV infection than from hepatitis B or C [6]. The risk of fulminant hepatitis is higher during pregnancy, albeit [3].

There are four different genotypes of the single-stranded RNA virus hepatitis E; the two that infect humans alone are known as endemic HEV or as the ones that cause epidemics in nations with inadequate sanitation. Sporadic infections in both rich and developing nations can be caused by genotypes 3 and 4, which can infect pigs, people, and other animals [7]. The global distribution of HEV differs according to genotype; sub-Saharan Africa and Mexico have a higher prevalence of genotype 2, whereas Latin America, Asia, and Africa are more likely to have genotype 1. Sporadic instances in industrialized nations are the most common way to find genotypes 3 and 4, which can infect both healthy and medically susceptible populations[8,9].

Although pregnant women are not more likely to get hepatitis A, B, or C viruses, they may be at a higher risk of contracting hepatitis E virus (HEV). Developed nations have recently begun to record a small number of cases of hepatitis E virus infection during pregnancy, however the vast majority of cases involving hepatitis E-related acute liver failure (ALF) occur in underdeveloped nations, particularly in Africa and the Indian subcontinent.

A large majority of hepatitis E-related maternal deaths occur in the third trimester of pregnancy. The low literacy rate, sporadic prenatal visits, and absence of prenatal care all play a role in this. Despite the mostly conservative approach to hepatitis therapy, it is crucial to check these women promptly. Further research on pregnant women's understanding, views, and attitudes about hepatitis E is needed in the literature [10]. There are now over 12 million people living with hepatitis B or C in Pakistan, and that figure rises by about 150,000 each year. An estimated 3.3 million symptomatic cases of hepatitis E occur annually across the world[11,12]. Much better than therapy, which is currently a topic of ongoing study, is prevention. In order to lessen this threat, it is essential to educate the public. The purpose of this study is to evaluate pregnant women's understanding about hepatitis E.

## **MATERIALS AND METHODS**

At Pumhs Civil Hospital Nawabshah, in the Gynecology and Obstetrics Department, 80 patients participated in this cross-sectional study. After the idea was approved by the ERB letter, the study lasted for 6 months. The method used for sampling was probability convenient sampling. Women

whose ages ranged from seventeen to forty were eligible to participate throughout their pregnancies. This research did not include patients who had a history of gastrointestinal issues or molar pregnancies. All participants gave their informed permission after receiving a thorough explanation of the study's purpose. Patients had standard prenatal exams, such as ultrasounds.

Software for statistical processing and analysis was SPSS 23. The variables were presented using frequency and percentage since they were reported in a categorical format. The connection between the participants' knowledge and perception and their age and trimester was examined using a chi-square test. Statistical significance was determined by a p-value less than 0.05.

**RESULTS**

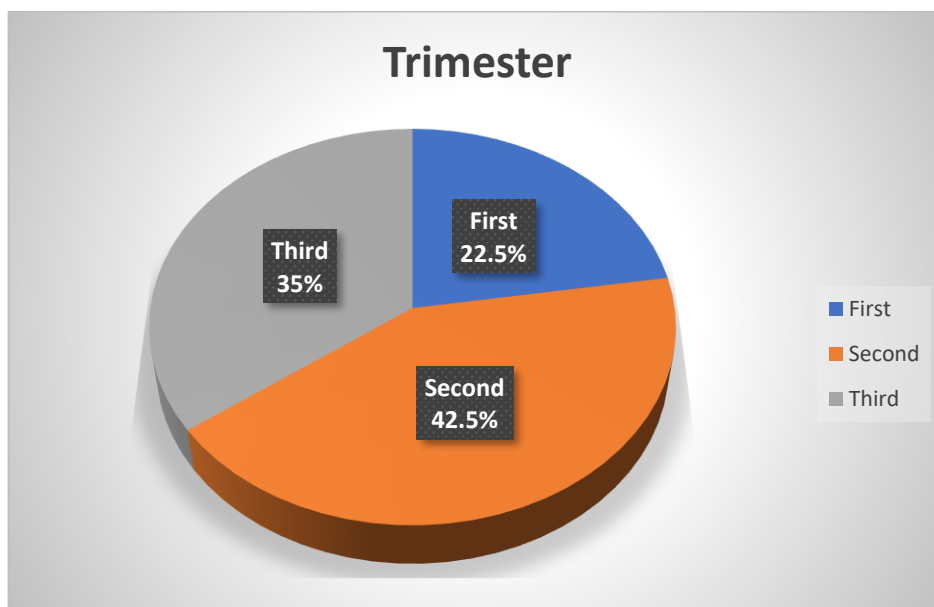
Pregnant females had mean age 27.9±5.25 years with mean BMI 25.12±7.33 kg/m<sup>2</sup>. Majority of the females 49 (61.3%) were literate. 46 (57.5%) cases were from urban areas and 34 (42.5%) cases had rural residency.(table 1)

**Table-1: Demographics of the enrolled cases**

Variables	Frequency	Percentage
Mean age (years)	27.9±5.25	
Mean BMI (kg/m <sup>2</sup> )	25.12±7.33	
<b>Education Status</b>		
Literate	49	61.3
Illiterate	31	38.7
<b>Residency</b>		
Urban	46	42.5
Rural	34	57.5

There were 34 (42.5%) cases had 2<sup>nd</sup> trimester of pregnancy, followed by 28 (35%) cases had 3<sup>rd</sup> trimester and 18 (22.5%) cases had first trimester.(figure 1)

Figure-1: Pregnant females with types of trimester



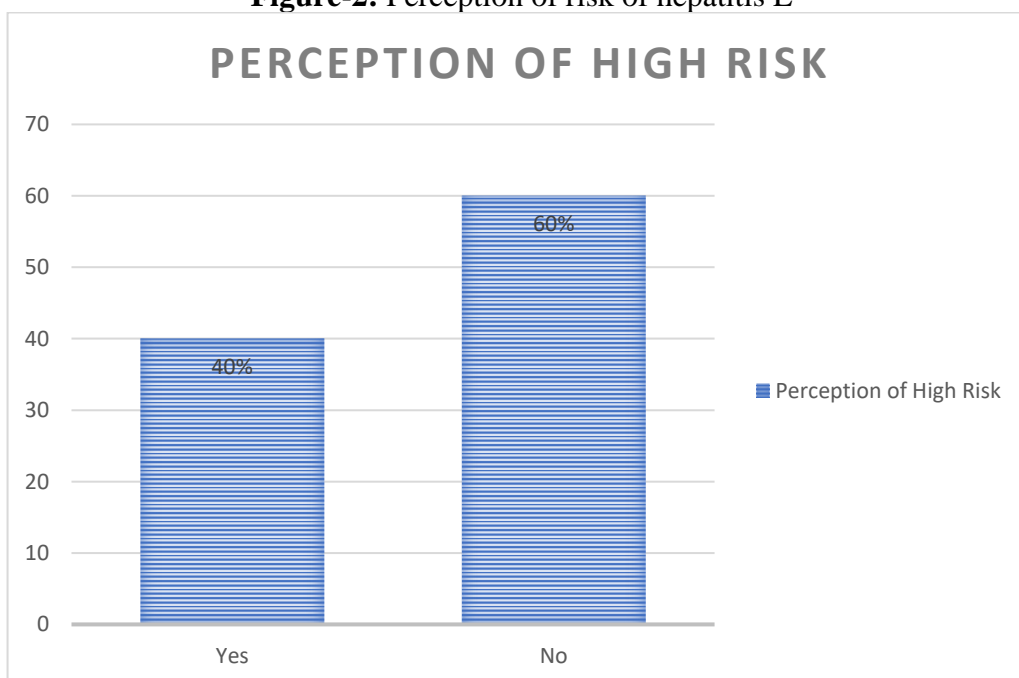
Among women, 78% had heard of Hepatitis E, 83% had known a person infected via viral infection, 55% didn't know it was caused by a virus, 42% knew it was spread through contaminated water and food, 50% knew it was spread by a blood transfusion, 60% knew it could be spread sexually, 41% knew it could be spread from mother to fetus, and 66% knew was spread more in pregnancy.(table 2)

**Table-2: Knowledge of hepatitis E among pregnant females**

<b>Knowledge</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Heard of Hepatitis E</b>		
Yes	63	78
No	17	22
<b>Known a person infected via viral infection</b>		
Yes	66	83
No	14	17
<b>Didn't know it was caused by a virus</b>		
Yes	44	55
No	36	45
<b>Spread through contaminated water and food</b>		
Yes	34	42
No	46	58
<b>Spread by a blood transfusion</b>		
Yes	40	50
No	40	50
<b>knew it could be spread sexually</b>		
Yes	48	60
No	32	40
<b>spread from mother to fetus</b>		
Yes	33	41
No	47	59
<b>knew it was dangerous in pregnancy</b>		
Yes	53	66
No	27	34

Only 40% of women thought that they were at risk of Hepatitis E, In this 28% were strongly agreed and 12% were agreed. (figure 2)

**Figure-2: Perception of risk of hepatitis E**



## DISCUSSION

Fulminant hepatic failure and maternal mortality may result from a more severe illness caused by hepatitis E infection during gestation or the third trimester, particularly when genotype 1 is involved [13]. Liver damage may occur during pregnancy due to a combination of factors, including hormonal and immunologic changes, a high viral load of HEV, and an unclear mechanism of harm [14]. The reduction of T cell-mediated immunity during pregnancy helps keep the fetus in the maternal environment, but also makes pregnant women more vulnerable to viral infections like HEV infection due to immunologic alterations. With each passing week of pregnancy, the levels of the reproductive hormones progesterone, estrogen, & human chorionic gonadotropin rise. The impact of these hormones on immunological modulation and virus replication is substantial [15].

Twenty million HEV infections occur each year, with 3.3 million cases exhibiting symptoms and 60,000 fatalities attributable to viral hepatitis, as stated in a factsheet published by the World Health Organization (WHO) in 2015.[16] Guidelines for the management of hepatitis E have been issued relatively recently by the European Association for the Study of the Liver (EASL)[17]. This is due to the fact that, in the past decade, there has been much scientific and clinical research on HEV pathogenesis.

Pregnant women's perspectives, understanding, and beliefs are crucial. A majority of women (78%) were familiar with the term "Hepatitis E," while a sizable minority (83%) had personal experience with a viral infection. Of those women, 55% were unaware that the virus was the cause. Among those women, 42% were aware that the virus could be transmitted through contaminated water and food, 50% by a blood transfusion, 60% through sexual contact, 41% from mother to fetus, and 66% during pregnancy. Forty percent of women did not consider themselves to be at risk for Hepatitis-E. Researchers in Hong Kong set out to fill in the blanks in the public's understanding of viral hepatitis using surveys and interviews.[18] In five hundred people who fit the requirements participated in this descriptive cross-sectional web-based survey. Out of all the people surveyed, only 55.8% had gone to a health checkup in the last two years, and 67.6% had no idea whether liver disease ran in their family. The prevalence of social stigmatization is clearly hinted at by the misconceptions regarding the knowledge and transmission dangers of viral hepatitis. In their ignorance, many people think that social behaviors (such as eating or having casual contact with an infected individual) might spread viral hepatitis from person to person. The fact that hepatitis C cannot be avoided by vaccination was also known by 19.0% of the population, while 62.4% were aware of hepatitis B vaccination[18]. Approximately 70% of those who were informed about the possibility of transmission from mother to child expressed a willingness to visit a doctor if they were pregnant.

According to earlier modeling studies that used a Global Burden of Disease methodology, the seroprevalence of HEV in the general population was projected to be between 5% and 22% in the years between 15 and 45 (the reproductive age for women) [19]. Our results from surveys of pregnant women are in line with those estimations. Pregnant women are at a higher risk of contracting hepatitis E virus (HEV) than other types of viral hepatitis (A, B, and C), according to the available data [20]. This makes HEV a major contributor to jaundice during pregnancy, alongside non-infectious reasons. It is possible that the inclusion of research from HEV endemic areas explains the high IgM seroprevalence of HEV infection in symptomatic women (nearly 50%). While we did not find a statistically significant difference, we did find that lower HDI was related with increased HEV infection prevalence. Actually, HEV infection is a problem in areas with little resources because of the lack of hygiene and sanitation services, which can contaminate water and food [3].

Pregnant women are a vulnerable demographic reporting an increase in mortality; this study is the first of its type to investigate their knowledge, perceptions, and attitudes towards this issue. There has to be conclusive proof for widespread hepatitis E immunization, and this study should serve as a wake-up call.

## CONCLUSION

Our research shows that pregnant women have a decent understanding of hepatitis E, but that additional health education and immunization campaigns are needed to lower the disease's death toll.

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