

## Mother's Awareness about Zero Dose of Hepatitis B Vaccination for their New Born Baby at Birth

Karima Ahmed Metawilly<sup>1</sup>, Hemat Abd El Moneem Elsayied<sup>2</sup>, Wafaa Khalil Ibrahim<sup>3</sup>

<sup>1</sup>B.Sc. in Nursing, <sup>2</sup>Professor of Community Health Nursing, <sup>3</sup>Lecturer of Community Health Nursing - Faculty of Nursing - Ain Shams University

### Abstract

**Background:** Hepatitis B virus (HBV) infection is a potentially life threatening liver infection. It is a major global public health problem and known to cause chronic hepatitis with high risk of mortality resulting from hepatic cirrhosis and cancer. **Objective:** The study aimed to assess mother's awareness about zero dose of Hepatitis B vaccination for their new born baby at birth. **Study Design:** A descriptive research design was used in this study to meet the aim of the study. **Setting:** The present study was conducted at Maternal and Child Health Center in ElQanater, Qalua Governorate. The study involved 224 mother's attending the previous setting in child bearing period, infected or free from hepatitis B infection through two days per week **Tools for data collection:** Two tools were used to collect the necessary data: **Tool I: An interviewing Questionnaire** included the following parts; **Part 1 :** Socio-demographic data of the studied mother. **Part 2: Mother's knowledge assessment questionnaire** the mother's knowledge about (a) Hepatitis B virus infections, (b) zero dose of Hepatitis B, mothers practices regarding vaccinated against hepatitis. **Part 3:** Mothers practices regarding screening for Hepatitis B during antenatal period, **Tool II:** Vaccination examination attitude scale of studied mothers. **Results:** Based on the results and research question of the present study it can be concluded that; more than half of the studied mothers had average level of knowledge about zero doses vaccination and hepatitis B infection, more than one third of them had good knowledge. While, less than quarter of them had poor level of knowledge. Also, it was found that there was more than half of the studied mothers had negative attitude regarding zero dose of hepatitis B virus vaccination. While, less than half of them had positive attitude. **Conclusion:** The study showed that, there was highly significant positive correlation between total mother's knowledge about zero dose of hepatitis B virus infections and their practice. While there was significant positive correlation between total mother's knowledge and their attitude. Also there was significant positive correlation between total mother's practice and their attitude. **Recommendation:** Emphasizes the need to enhance the public health education efforts to improve hepatitis B knowledge among women in reproductive age. Increase awareness regard the benefits of hepatitis B vaccine, concerns about vaccine safety for newborn were prevalent.

**Keywords:** Mother's Awareness, Hepatitis B Vaccination, Zero Dose, Hepatitis B, Birth

### Introduction:

Hepatitis B virus (HBV) infection is a potentially life threatening liver infection. It is a major global public health problem and known to cause chronic hepatitis with high risk of mortality resulting from hepatic cirrhosis and cancer (Guidotti, Isogawa, & Chisari, 2015).

In highly endemic regions HBV infection is commonly spread from mother to child prenatally, during the period of delivery

(perinatal transmission), or through horizontal transmission (exposure to infected blood/ body or other fluids) particularly from an infected child to an uninfected child during the first five years of life (Eke, Onyire, & Amadi, 2016).

Mother-to-child transmission (MTCT) has also been shown to occur during pregnancy and/or delivery. (MTCT) of HBV infection has been reported to be responsible for over a third of cases of chronic HBV infections worldwide. Hepatitis B infection in pregnancy poses a

serious threat to the infant at birth ( **Wang et al., 2017**).

Most morbidity (e.g., liver cancer and liver failure) and mortality from HBV occurs in people with chronic HBV infection. Thus, the primary goal of administering hepatitis B vaccine at birth (i.e., the “birth dose”) is the first step to prevent chronic HBV infection. Post-exposure prophylaxis of newborns born to chronically infected mothers is 85%–95% effective when administered within 12 hours of birth (**Yi, Chen, Huang, Zhou, & Fan, 2016**).

Mothers must understand the necessity of HBV testing during pregnancy, the benefits of timely infant hepatitis B vaccination, and for infected mothers the importance of the newborn receiving hepatitis B birth dose and hepatitis B immunoglobulin within 24 hours after birth and completing the vaccine series. A number of studies have found that knowledge about HBV: including transmission routes and prevention, was poor among mothers (**Hang Pham et al., 2019**).

Education about the importance of administering the birth dose within 24 hours of birth is vital. Universal screening of all pregnant women for hepatitis B is thus a pre-requisite for effective preventive services and follow up care to be put in place. The national guidelines recommend hepatitis B vaccine (HepB-BD) preferably given to an infant within 24 hours, and up to 14 days post-delivery. Some reasons adduced for the delays in receiving birth dose vaccination include cost considerations, poor maternal awareness, unavailability of vaccines and a lack of awareness of benefits of the vaccines (**Ibraheem et al., 2019**).

Birth dose is effective in preventing 85% of HBV transmission from an infected mother to her child so the mother's awareness regarding zero dose of HBV vaccine is an important way that contributes substantially to decrease the burden of viral hepatitis in Egypt (**Eke, Onyire, & Amadi, 2016**).

The role of community health nurse include screening pregnant women for HBsAg

(HBV infection), starting anti-viral therapy for those with HBeAg positivity and high viral load, providing infant post-exposure prophylaxis (PEP) using the administration of hepatitis B vaccine within 24 hours of birth followed by completion of the HBV vaccine series; are recognized strategies for reducing MTCT transmission rates and the global burden of a new chronic HBV infection. Also efforts should be made to educate carrier mothers (after testing) and their families on the prevalent risk factors and essence of preventive measures (**Terrault et al., 2018**).

### **Significant of the study:**

---

Hepatitis B endemic is a global health concern that cannot be ignored. Although hepatitis is preventable through vaccination, the high prevalence of chronic infection occurs in developing countries that have insufficient public health education. There are “292 million people in the world living with chronic hepatitis B”, causing “780,000 deaths annually from liver related complications (**Lavanchy & Kane, 2016**).

In Egypt, an estimated 3.3 million persons are infected with hepatitis B. Chronic HBV infection, which occurs when the acute infection is not cleared by the immune system, is associated with a 15-25% risk of premature death from liver cancer or end-stage liver disease (**Talaat et al., 2019**).

### **Aim of the Study:**

---

Aim of the study was to assess mother's awareness about zero dose of Hepatitis B vaccination for their new born baby at birth through:

- 1- Assess the mother's knowledge about zero dose of hepatitis B virus vaccination.
- 2- Assess the mother's practices related screening doing during antenatal period about hepatitis B virus.
- 3- Assess the mother's attitude regard zero dose of hepatitis B virus vaccination.

**Research questions:**

1- Is there a relation between mother's sociodemographic characteristics and their knowledge about vaccination zero dose of hepatitis B virus?

2- Is there relation between mother's knowledge and their practice about zero dose of hepatitis B virus vaccination?

3- Is there a relation between mother's sociodemographic characteristics and their attitude regard vaccination zero dose of hepatitis B virus?

4- Is there relation between mother's practices and their attitude regarding zero dose of hepatitis B virus vaccination?

**Subjects and Methods:**

**Study Design:** A descriptive research design was used in this study to meet the aim of the study.

**Technical Design:****Setting:**

The present study was conducted at Maternal and Child Health Center in El Qanater, Qalua Governorate there is a high population density because this center provides services for children which include 2240 child received zero dose of hepatitis B according to their attendance in (2017).

**Sampling:** The type of study sample was convenient sample, consisted of 224 representing 10% of the total attendance rate at 2017 (2240) mother's attending the previous setting in child bearing period, infected or free from hepatitis B infection through two days per week (Sunday and Thursday). From the total sample 3% (74) mothers were excluded due to pilot study.

**Tools for data collection:** Two tools were used to collect the necessary data:

**TOOL I: An interviewing Questionnaire:** It was designed by the investigator based on literature review and presented in simple clear Arabic language to assess the following parts;

**Part 1:** Socio-demographic data of the studied mother. such as age, level of education, occupation, place of residence, number of children, number of room, health unit close to the house, and family income.

**Part 2: Mother knowledge about:** It was developed by investigator based on review of literature and content validated by the pilot study. It composed of the following the mother's knowledge about

A) Hepatitis B virus infections as regards Causes of Hepatitis B, Type, hepatitis B can be transmitted by, Hepatitis B can be transmitted from mother to fetus during pregnancy, clinical manifestations, Stages of acute and chronic hepatitis B, Diagnosis of hepatitis B, treatment, way to prevent viral hepatitis B infection.

B) Mothers knowledge about zero dose of Hepatitis B regarding first zero dose for hepatitis B, Routes of administration a zero dose of hepatitis B, site of administration a zero dose of hepatitis B, dates of hepatitis B, Side effects of a zero dose of hepatitis B, Contraindications to vaccination of zero dose of hepatitis B, importance of zero doses for hepatitis B, Where to take zero dose of hepatitis B for newborns.

**Scoring for Mother Knowledge:**

Total mother's knowledge answers was (30) points, classified into : complete or true answer was scored 2 while the incomplete answer scored 1 and don't known or false answer scored 0, the scores of the item were summed up and the total was divided the number of items, giving a mean score for the part. These scores were converted into a percent score. The mothers' knowledge was considered categorized into score. From 75- 100, refereed

to good answer. -From 50- 75, refereed to average answer. -< 50, referred to poor answer.

**Part 3:** Mothers practices regarding vaccinated against Hepatitis B as regards when you forget the date of vaccination what to do, a what to do if the temperature high before vaccination, doing if the temperature high after vaccination ,doing when severe redness and swelling of the injection site.

C) mothers practices regarding screening for Hepatitis B during antenatal period as regards Commitment to regular follow-up during pregnancy, laboratory tests for hepatitis B were performed, Do you have hepatitis B, did you take the hepatitis B vaccine, the cause of your hepatitis C infection, when you discover hepatitis B, do you stick to the treatment plan, the laboratory tests done to detect hepatitis B.

**Scoring for Mother Practices:** answers was (11) points, each mother response was scored as done or not done. For practice items, correct answers were predetermined according to literature review. A correct answer was scored 2 when the practice done and a correct answer scored 1 when the practice not done, the scores of items were summed up and the total was divided the number of items. The total score of practice were categorized as following Satisfied 50% and more. Unsatisfied were less than 50%.

**Tool II:** Vaccination examination attitude scale: To assess the mother's attitude regarding regard zero dose of hepatitis B virus vaccination. It adopted from (Martin and Petrie, 2017).

**Attitude Scoring:** answers was (12) points. It was used to assess mother attitude toward zero dose of Hepatitis B the scale covered 7 clear statement of positive attitude and negative attitude of mothers.3 points Likert were offer for each statement: Disagree attitude scored by zero point, not sure attitude scoring by one point and agree attitude scored by two points. Score less than 60% were evaluated negative attitude and score equal or more than 60% as positive attitude.

### Operational Design:

**Preparatory Phase:** A review of the past and current related to literature covering all aspects helpful in designing and processing data collection tools using available books, journals, articles, nursing magazines and net.

### Ethical consideration and administrative design:

An official permission was obtained by submission of formal letter issued from the administrators of faculty of Nursing Ain Shams university to administer of Maternal and Child Health Center El-Qanater, Qalubia Governorate after explanation the purpose of the study. As regard women, they had the right to refuse and the investigator provided strict concern for privacy of child condition and give reassurance to reduce mother anxiety.

**Pilot Study:** A pilot study was carried out on 3% (74) of the mothers at the pre-mentioned settings to test clearly, applicability, practicability of the tools. Corrections, modification, omissions and adding were followed as needed. They were excluded from the study sample.

**Field Work:** Data collection conducted by interviewing mothers of the pre-mentioned settings;

The actual work of started and completed within 3 months from the beginning of March (2019) to June (2019), this was done for collecting the questionnaires of the study sample on two days / week on (Sunday and Tuesday), between (8 to 10) women/day, from 9 AM–11 AM. The total time needed for interviewing questionnaire ranged from 45 minutes to answered all questions.

**5. Statistical Design:** The collected data were organized, scored tabulated and analyzed using the number and percentage, distribution. Statistics analyzed done by computer and proper statistical tests were used to determine whether there was significant difference or not. The following statistical analysis were used:

number, percentage, mean, Chi-square (X<sup>2</sup>) and proportion probability of error (P value). P

### Results:

Table (1): reveal that, 43.8% of the studied mothers their age ranged from 25-<30 years, with Mean SD  $27.39 \pm 6.12$  year. In relation to the educational level of the mothers under study, it was found that, 54.9% of them had basic education. Also, 66.5% of the studied mothers were not working. Moreover, 63.4% of the studied mothers were residing in rural areas. Also, 63.4% & 49.1% of the mothers under study had 3-4 children and had 3-5 rooms respectively. Meanwhile, 75% of the studied mothers had a health unit close to their house. Related to monthly household income, 56.2% of the studied mothers had insufficient income.

Figure (1): illustrate that, 71.4% of the studied mothers had poor level of knowledge about Hepatitis B Infections, 17.4% of them had average knowledge. While, only 11.2% of them had good level of knowledge.

Figure (2): illustrate that, 75.9% of the studied mothers had poor level of knowledge about zero doses of hepatitis B infections, 16.1% of them had average knowledge. While, only 8% of them had good level of knowledge about zero doses of hepatitis B.

Figure (3): reveals that, 51.9% of the studied mothers had average level of knowledge about zero doses vaccination and hepatitis B infection, 32.1% of them had good knowledge. While, only 18% of them had poor level of knowledge.

Figure (4): demonstrate that, 64.3% of the studied mothers had unsatisfactory level of practices about vaccination against Hepatitis B. While, 35.7% of them had satisfactory level of practices about vaccination against Hepatitis B.

value < 0.01, highly significant. P value < 0.05, significant. P value > 0.05, non-significant.

Figure (5): illustrate that, 69.6 % of the studied mothers had unsatisfactory level of total practices regarding screening for hepatitis B. While, 30.4 % of them had satisfactory level of total practices.

Figure (6): illustrate that, 53.6% of the studied mothers had negative attitude regarding zero dose of hepatitis B virus vaccination. While, 46.4% of them had positive attitude.

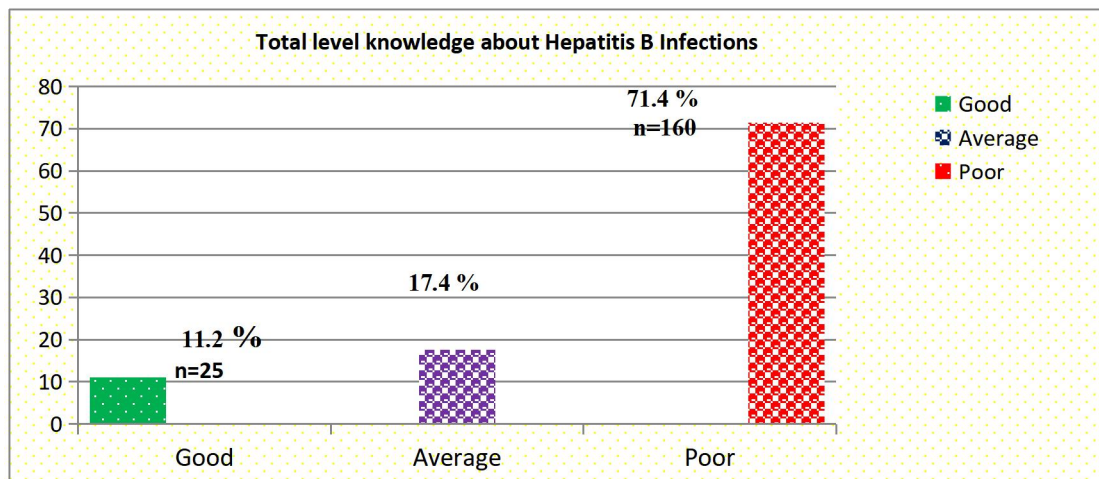
Table (2) demonstrate that, there were highly statistically significant relation between total knowledge of the studied mothers about Zero Dose of Hepatitis B Vaccination and their educational level, health unit close to the house and monthly income at ( $P = < 0.01$ ). Also, there were statistically significant relation with their age, job and place of Residence at ( $P = < 0.05$ ). While, there were no significant relation with their marital status at ( $P = > 0.05$ ).

Table (3) demonstrate that, there were highly statistically significant relation between total attitude of the studied mothers about Zero Dose of Hepatitis B Vaccination and their educational level and health unit close to the house at ( $P = < 0.01$ ). Also, there were statistically significant relation with their job at ( $P = < 0.05$ ). While, there were no significant relation with their age, marital status, place of Residence and monthly income at ( $P = > 0.05$ ).

Table (4) show that, there was highly significant positive correlation between total mother's knowledge about zero dose of hepatitis B virus infections and their practice. While there was significant positive correlation between total mother's knowledge and their attitude. Also there was significant positive correlation between total mother's practice and their attitude.

**Table (1): Number and percentage distribution of the studied mothers according to their socio-demographic characteristics (n=224).**

Items	No.	%
<b>Age (year)</b>		
20-<25	62	27.7
25-<30	98	43.8
30-<35	46	20.5
≥ 35	18	8
<b>Mean±SD</b>	<b>27.39 ± 6.12</b>	
<b>Range</b>	<b>(18)</b>	
<b>Educational level</b>		
Not read & write	24	10.7
Read and write	45	20.1
Basic education	123	54.9
University education	32	14.3
<b>Occupation</b>		
Work	75	33.5
Not Work	149	66.5
<b>Place of Residence</b>		
Urban	82	36.6
Rural	142	63.4
<b>Number of Children</b>		
<3 child	114	50.9
3-4 child	90	40.2
>4 child	20	8.9
<b>Number of home rooms</b>		
<3	96	42.9
3-5	110	49.1
>5	18	8
<b>There is a health unit close to the house</b>		
Yes	168	75
No	56	25
<b>Monthly household income is sufficient</b>		
Yes	98	43.8
No	126	56.2



**Figure (1):** Percentage distribution of the studied mothers according to their total level knowledge about Hepatitis B Infections (n=224).

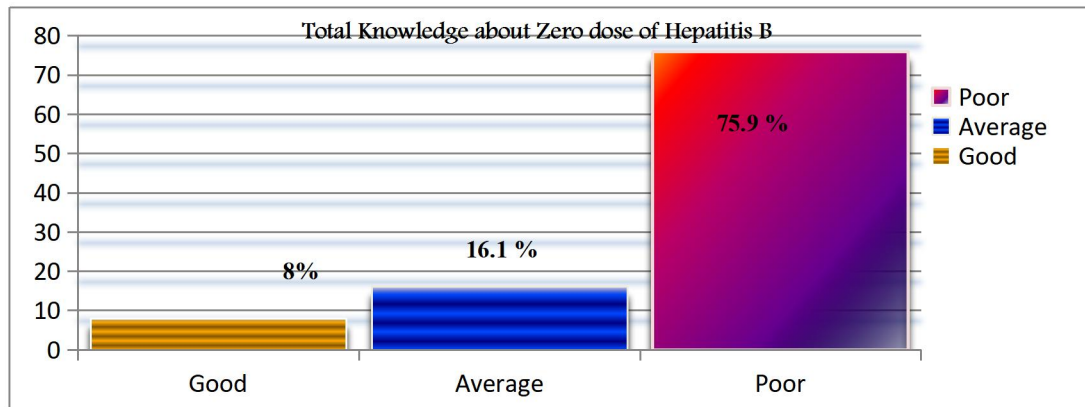


Figure (2): Percentage distribution of the studied mothers according to their total level knowledge about zero dose of hepatitis B (n=224).

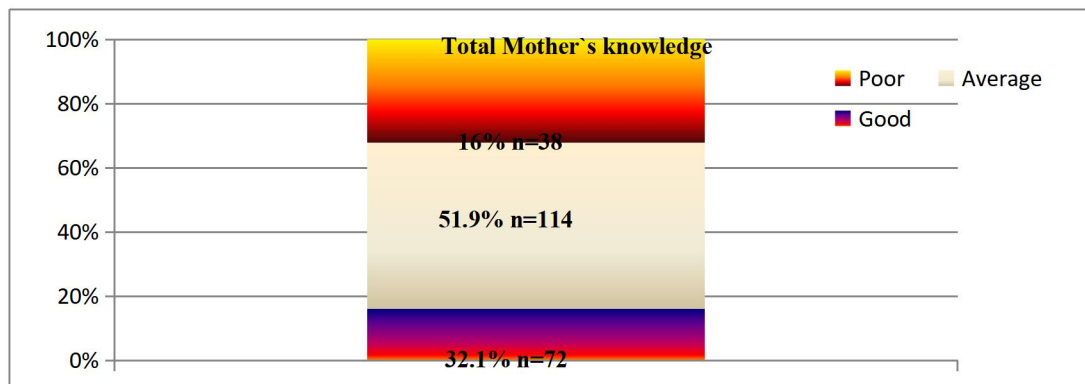


Figure (3): Percentage distribution of the studied mothers according to their total level knowledge (n=224).

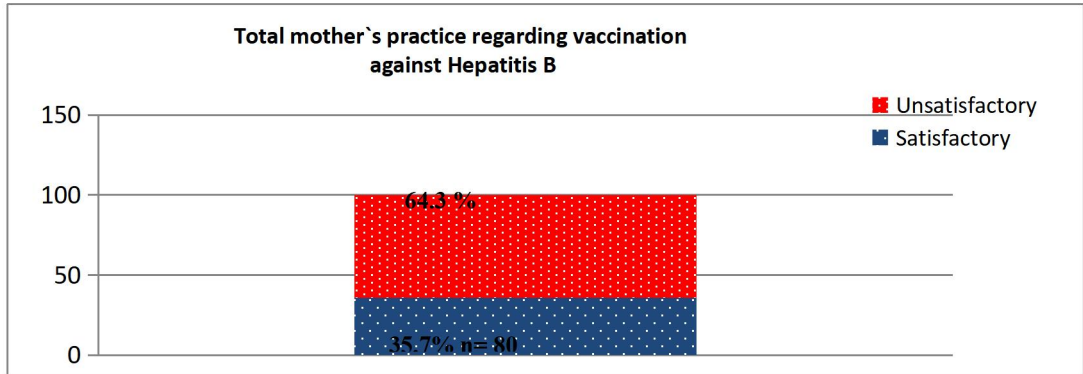


Figure (4): Percentage distribution of the studied mothers according to their total level practices regarding vaccinated (zero doses of hepatitis B) (n=224).

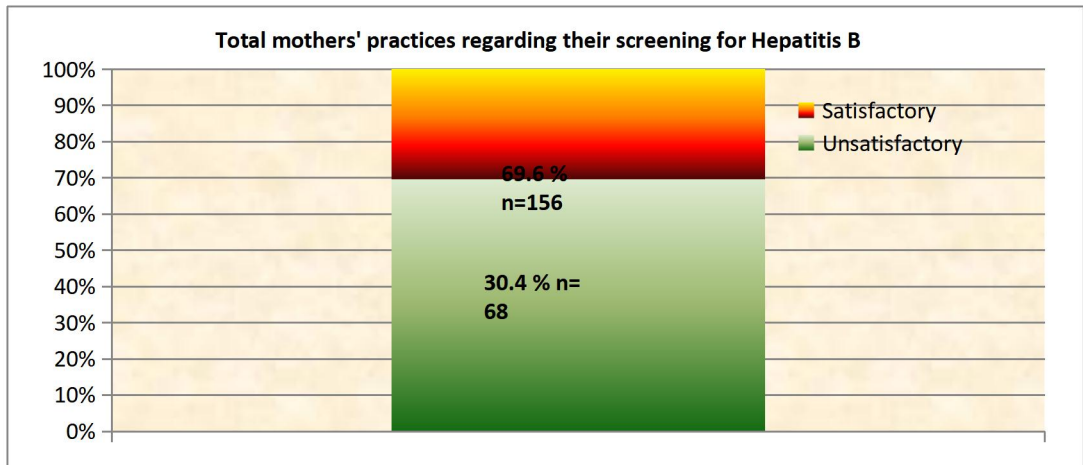


Figure (5): Percentage distribution of the studied mothers according to their total level practices regarding screening for Hepatitis B during antenatal period B (n=224).

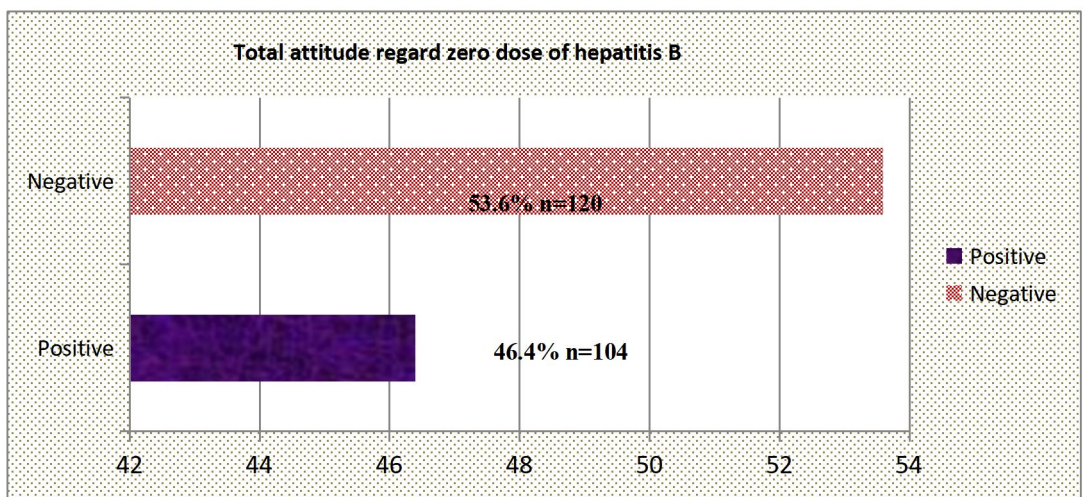


Figure (6): Number and percentage distribution of the studied mothers according to their total attitude regard zero dose of hepatitis B virus vaccination (n=224).



**Table (2):** Relation between sociodemographic characteristics of the studied mothers and their total knowledge about Zero Dose of Hepatitis B Vaccination (n=224).

Items		Good n=38		Total knowledge Average n=114		Poor n=72		X <sup>2</sup>	P-Value
		N	%	N	%	N	%		
Age (year)	20-<25	4	10.5	26	22.8	32	44.4	13.40	0.02*
	25-<30	16	42.1	62	54.4	20	27.8		
	30-<35	12	31.6	15	13.2	19	26.4		
	≥ 35	6	15.8	11	9.6	1	1.4		
Marital status (n=216)	Married	36	94.7	108	94.8	72	100	6.531	0.132
	Divorced (n=5)	2	5.3	3	2.6	0	0.0		
	Widow (n=3)	0	0.0	3	2.6	0	0.0		
	No read or write	0	0.0	16	14.0	8	11.1		
Educational level	Read and write	4	10.5	28	24.6	13	18.1	29.31	.000**
	Basic Educ.	18	47.4	60	52.6	45	62.5		
	University	16	42.1	10	8.8	6	8.3		
Job	Work	31	81.6	32	28.1	12	16.7	14.22	0.015*
	Not Work	7	18.4	82	71.9	60	83.3		
Place of Residence	Urban	33	86.8	34	29.8	15	20.8	15.13	0.01*
	Rural	5	13.2	80	70.2	57	79.2		
Health unit close to the house	Yes	28	73.7	92	80.7	48	66.7	22.19	.003**
	No	10	12.6	22	19.3	24	33.3		
Monthly income is sufficient	Yes	30	78.9	48	42.1	20	27.8	20.94	.004**
	No	8	21.1	66	57.9	52	72.2		

\*Significant at  $p < 0.05$ . \*\*Highly significant at  $p < 0.01$ .

**Table (3):** Relation between sociodemographic characteristics of the studied mothers and their total attitude regarding zero dose of hepatitis B virus infections (n=224).

Items		Total attitude Positive (n=104)		Negative (n=120)		X <sup>2</sup>	P-Value
		N	%	N	%		
Age (year)	20-<25	20	19.2	42	35	9.521	0.081
	25-<30	33	31.7	65	54.2		
	30-<35	34	32.7	12	10		
	≥ 35	17	16.4	1	0.8		
Marital status	Married	100	96.2	115	95.8	7.981	0.110
	Divorced	2	1.9	3	2.5		
	Widow	2	1.9	2	1.7		
	Do not read or write	2	1.9	22	18.3		
Educational level	Read and write	17	16.4	28	23.3	27.81	.000**
	Basic education	55	52.9	68	56.7		
	University education	30	28.8	2	1.7		
Job	Work	60	57.7	15	12.5	15.03	0.01*
	Not Work	44	42.3	105	87.5		
Place of Residence	Urban	51	49	31	25.8	8.104	0.14
	Rural	53	51	89	74.2		
Health unit close to the house	Yes	78	75	90	75	24.10	.001**
	No	26	25	30	25		
Monthly income is sufficient	Yes	60	57.7	38	31.7	7.294	0.118
	No	44	42.3	82	68.3		

\*Significant at  $p < 0.05$ . \*\*Highly significant at  $p < 0.01$ .

**Table (4):** Correlation between the mother's knowledge about zero dose of hepatitis B virus infections and their practice and attitude.

Items	Total practice	Total attitude
Total knowledge	r = 0.416 P = .000**	r = 0.386 P = .017*
Total practice		r = 0.397 P = .011*

(\* ) Statistically significant at  $p < 0.05$ , \*\* Highly significant at  $p < 0.01$

### Discussion:

Regarding characteristics of the studied mothers, the finding of the current study revealed that the mean age was  $27.39 \pm 6.12$  year. This finding was similar with the study by **Chung, et al., (2017)** entitled Awareness and knowledge of hepatitis B infection and prevention and the use of hepatitis B vaccination in the Hong Kong and found that more than half of the studied sample aged from 26 to less than 35 years. From the researcher point of view is increasing risk of hepatitis B steadily with age.

Concerning mothers of affected children showed that more than half of mothers were basic education and rest of them was high education. This study result was disagree with study by **Kilis-Pstrusinska et al., (2018)** entitled Knowledge of and attitudes towards hepatitis B and its transmission from mother to child among pregnant women (in Poland) which found that more than half of mother had university education. It might be due to difference of cultures and reflect the compliance with hepatitis B management

As regards the occupation of mothers of studied sample, more than two thirds of them not working and only one third of them were working this result agreed with **Kilis-Pstrusinska et al., (2018)** who reported that the great majority of studied mothers were not employed, it might due to caring of their children.

The current study showed that more than two thirds of studied mothers from rural places, whereas urban is only one third of mothers. This finding agree with the study by **Liang et al., (2017)** in titled Evaluation of the impact of

hepatitis B vaccination among children in China who showed that rural area usually have limited spread use of technologies where the nature of life is closed.

Regarding to the number of studied children inside the family, it was found less than half of the mothers under study had 3-4 children and had 3-5 rooms respectively. This finding was agreed with **(El-Sawy, et al., 2015)**, entitled Knowledge and home practices of caregivers having children with hepatitis attending national liver institute Cairo, Egypt who reported that half of participant had 3-4 children and living in two to four rooms at home.

The finding of the present study illustrate that more than half of mothers' took their information from internet about hepatitis B infections and zero doses at birth. This result agree with **Mohamed et al., (2019)** who studied Knowledge, attitudes and practices among people with chronic hepatitis B attending a hepatology clinic in Malaysia, mention patients with hepatitis B virus were provider health knowledge by physician and nurse educator, who give nursing advice about routine immunization program and understand that HBV is preventable by vaccination. Also, information needs to be in simplified language. The researcher could view the present result as it emphasized that the physician and community nurses are the primary source of health education. In addition, mothers with more education likely have greater access to information from various sources including mass media, health websites, educational pamphlets, and healthcare professionals.

Concerning, the findings of the present study regarding zero dose of hepatitis illustrated

that more than three quarters of studied mothers had poor level of knowledge about zero doses of hepatitis B infections, while, the rest of them had good level of knowledge. **Downing et al., (2017)** entitled Barriers to the delivery of the hepatitis B birth dose: a study of five Papua New Guinean hospitals. This study found encouraging birth-dose coverage rates in five major hospitals but 20% of babies still missed receiving the recommended vaccine. The Immunization Unit will use the results of this study to inform strategies to improve hepatitis B birth-dose coverage in hospitals.

The finding in demonstrated that, there were highly statistically significant relation between total knowledge of the studied mothers about zero dose of hepatitis B vaccination and their educational level, health unit close to the house and monthly income at ( $P = < 0.01$ ). Also, there were statistically significant relation with their age, job and place of residence at ( $P = < 0.05$ ). While, there were no significant relation with their marital status at ( $P = > 0.05$ ). Nearly the same results were reached by **Wilson et al., (2019)** entitled Missed hepatitis B birth dose vaccine is a risk factor for incomplete vaccination but they added to level of education, the level of income. Moreover; **Al-Hazmi, (2017)** studied Knowledge, attitudes and practice of primary health care physicians towards hepatitis B virus, found a significant relation between the level of knowledge, level of education and family income ( $p = 0.01$ ). lower educational level may be associated with poor understanding of the nature of the disease and its screening which in turn may affect the newly generation and impact on health status of children, also the mothers who had high degrees of education who had higher degree of knowledge regarding hepatitis.

In relation to total level of practices regarding screening and zero doses of hepatitis B vaccination & screening for Hepatitis B during antenatal period for hepatitis B, the current study illustrated that, more than two thirds of the studied mothers had unsatisfactory practices. This result consistent with **Mokaya et al., (2018)** entitled Confronting the stigma of hepatitis B virus (HBV) infection who found its

necessary to evaluate effective training interventions to improve awareness and skills in hepatitis B virus and the public health interventions to improve HBV antenatal screening and hepatitis B birth dose practices are needed, particularly at primary health care. This may have been due to shortage of nursing staff give advices and limited hospital supplies.

Concerning total attitude of mothers regard zero dose of hepatitis B virus vaccination illustrated that, more than half of the studied mothers had negative attitude regarding zero dose of hepatitis B virus vaccination. This finding is congruent with **Tan et al., (2017)** who studied treatment of hepatitis B virus-infected pregnant women at different gestational stages for the prevention of mother-to-child transmission which found a higher education level was the only factor independently associated with higher attitude scores.

The present study demonstrated that, highly statistically significant relation between total attitude of the studied mothers about zero dose of hepatitis B vaccination and their educational level and health unit close to the house at ( $P = < 0.01$ ). Also, there were statistically significant relation with their job at ( $P = < 0.05$ ). While, there were no significant relation with their age, marital status, place of residence and monthly income at ( $P = > 0.05$ ). this result was disagreement with **Cheng et al., (2017)** who studied Pregnant Women and Healthcare Practitioners Assessing the Knowledge of Attitudes and Practices of Hepatitis B Management at a Teaching Hospital in Kumasi, Ghana, which the study found that there were highly statistically significant relations between mother's level of education and their level of attitude toward their children, these relations mean that, mothers' education had direct effect on mothers attitude, practice and knowledge. This can be interpreted that highly educated mothers often have better opportunities to develop skills and attitude.

Regarding the correlation between total mother's knowledge about zero dose of hepatitis B virus infections and their total practices, the current study (table, 11) found

that, significant positive correlation between total mother's knowledge and their attitude ( $<0.05$ ). Also there was significant positive correlation between total mother's practice and their attitude ( $p<0.01$ ). This result is supported with **Rathi et al., (2018)**, who carried out a study to assess knowledge, attitude and practices toward prevention of hepatitis B infection among high risk setting of newly established and mentioned that, there was a positive correlation between the knowledge total level, practices and attitude ( $p=0.014$ ). From the researcher point of view, implying that better knowledge about the disease has a positive effect on the practices exercised by mothers.

### **Conclusion:**

**Based on the results and research question of the present study it can be concluded that:**

More than half of the studied mothers had average level of knowledge about zero doses vaccination and hepatitis B infection, more than one third of them had good knowledge. While, less than quarter of them had poor level of knowledge. Also, it was found that there was more than half of the studied mothers had negative attitude regarding zero dose of hepatitis B virus vaccination. While, less than half of them had positive attitude. It was founded that more than two third of the studied mothers had unsatisfactory level of total practices about Zero Dose of Hepatitis B Vaccination & screening for Hepatitis B during antenatal period. While, more than one third of them had satisfactory level of total practices.

Also, it was found that there was highly statistically significant relation between total knowledge of the studied mothers about Zero Dose of Hepatitis B Vaccination and their educational level, health unit close to the house and monthly income at ( $P= < 0.01$ ). Also, there were statistically significant relation with their age, job and place of residence at ( $P= < 0.05$ ). While, there were no significant relation with their marital status at ( $P= >0.05$ ). there was highly significant positive correlation between

total mother's knowledge about zero dose of hepatitis B virus infections and their practice. While there was significant positive correlation between total mother's knowledge and their attitude. Also, there was significant positive correlation between total mother's practice and their attitude.

### **Recommendation:**

**Based on the study findings and research questions the following recommendation can be suggested:**

- Emphasizes the need to enhance the public health education efforts to improve hepatitis B knowledge among women in reproductive age.
- Received information regard HBV transmission and vaccine safety to improve hepatitis B birth dose vaccination rate and eliminate mother to child transmission.
- Public health interventions to improve HBV antenatal screening and hepatitis B birth dose practices are needed, particularly at primary healthcare settings, to eliminate mother-to-child transmission.
- Increase awareness regard the benefits of hepatitis B vaccine, concerns about vaccine safety for newborn were prevalent.

### **Reference:**

- Al-Hazmi AH. (2017):** Knowledge, attitudes and practice of primary health care physicians towards hepatitis B virus in Al-Jouf province, Saudi Arabia. *BMC Res Notes.* 2017 May 9; 7:288. <https://doi.org/10.1186/1756-0500-7-288>
- Cheng A., Jose J., Larsen-Reindorf R., Small C., Nde H., & Dugas L., (2017):** Pregnant Women and Healthcare Practitioners Assessing the Knowledge of Attitudes and Practices of Hepatitis B Management at a Teaching Hospital in Kumasi, Ghana, West

- Africa. *Open Forum Infectious Diseases*, 2(4): 122–122.
- Chung, P. Suen, S. Chan, O. Lao, T. & Leung, T. (2017):** Awareness and knowledge of hepatitis B infection and prevention and the use of hepatitis B vaccination in the Hong Kong adult Chinese population. *China Med J (Engl.)*; 125(3):422-7.
- Downing, S. Lagani, R. & Hellard (2017):** Barriers to the delivery of the hepatitis B birth dose: a study of five Papua New Guinean hospitals, *PNG Med J.*; 51(1-2):47-55
- Eke, C., Onyire, N., & Amadi, O. (2016).** Prevention of mother to child transmission of hepatitis B virus infection in Nigeria: A call to action. *Nigerian Journal of Paediatrics*, 43(3), 201-208.
- El-Sawy, M. Ismail, G. & Magdy, H. (2015):** Knowledge and home practices of caregivers having children with hepatitis attending national liver institute Cairo, Egypt; *Medical Journal. Cairo University*, 81(1): 605-608.
- Guidotti, L. G., Isogawa, M., & Chisari, F. V. (2015).** Host–virus interactions in hepatitis B virus infection. *Current opinion in immunology*, 36, 61-66.
- Hang Pham TT, Le TX, Nguyen DT, Luu CM, Truong BD, Tran PD, Toy M. So S. (2019).** Knowledge, attitudes and practices of hepatitis B prevention and immunization of pregnant women and mothers in northern Vietnam. *PLoS ONE*; 14(4). 1: 15
- Ibraheem R., Abdulksdir M., Akintola M. and Adeboye M. (2019).** Determinants of Timely Presentation for Birth Dose Vaccination at an Immunization Centre in North-central Nigeria. *Annals of Global Health.*; 85(1): 1–9.
- Kilis-Pstrusinska K, Medynska A, Chmielewska IB, (2018):** Perception of health-related quality of life in children with chronic kidney disease by the patients and their caregivers: Multicentre national study results. *Qual Life Res*; 22:2889-97.
- Lavanchy, D., & Kane, M. (2016).** Global epidemiology of hepatitis B virus infection Hepatitis B virus in human diseases. Springer, Pp. 187-203.
- Liang, X. Bi, S. & Yang, W. (2017):** Evaluation of the impact of hepatitis B vaccination among children born between in China. *J Infect Dis*; 200:39–47.
- Martin R and Petrie K (2017):** Understanding the Dimensions of Anti-Vaccination Attitudes: the Vaccination Attitudes Examination (VAX) Scale. *Annals of Behavioral Medicine*, 51(1); 136-142.
- Mohamed R, Ng CJ, Tong WT, Abidin SZ, Wong LP, & Low WY. (2019):** Knowledge, attitudes and practices among people with chronic hepatitis B attending a hepatology clinic in Malaysia: a cross sectional study. *BMC Public Health*. 12:601.
- Mokaya J., McNaughton A., Burbridge L., Maponga T., O’Hara G., & Andersson M., (2018):** Confronting the stigma of hepatitis B virus (HBV) infection—A systematic review [version 1; referees: 2approved with reservations]. *Wellcome Open Research*, 3(29): 26-32.
- Rathi, A. Kumar, V. Lal, P. Singh, S. Jain, D. & Majhi, F. (2018):** Assessment of knowledge, attitude and practices toward prevention of hepatitis B infection among high risk setting of newly established. Medical institution. *Journal of laboratory physicians*, 10 (5): 345-347.
- Talaat, M., Afifi, S., Reaves, E. J., Elsood, H. A., El-Gohary, A., Refaey, S., Kandeel, A. (2019).** Evidence of sustained reductions in the relative risk of acute hepatitis B and C virus infections, and the increasing burden of hepatitis a virus infection in Egypt: comparison of sentinel acute viral hepatitis

surveillance results, 2001–17. *BMC infectious diseases*, 19(1), 159.

**Tan Z, Yin Y, Zhou J, Wu L, X. & Hou H. (2017):** treatment of hepatitis B virus-infected pregnant women at different gestational stages for the prevention of mother-to-child transmission: Outcomes of telbivudine treatment during pregnancy. *Medicine (Baltimore)*.; 95(40):4847.

**Terrault, N. A., Lok, A. S., McMahon, B. J., Chang, K. M., Hwang, J. P., Jonas, M. M., Wong, J. B. (2018).** Update on prevention, diagnosis, and treatment of chronic hepatitis B: AASLD 2018 hepatitis B guidance. *Hepatology*, 67(4): 1560-1599.

**Wang, F., Zhang, G., Zheng, H., Miao, N., Shen, L., Wang, F., Zhang, X. (2017).** Post-vaccination serologic testing of infants born to hepatitis B surface antigen positive mothers in 4 provinces of China. *Vaccine*, 35(33): 4229-4235.

**Wilson, P. Taylor, G. Knowles, J. Blyth, E. Laux, J. & Lohr, J. (2019):** Missed hepatitis B birth dose vaccine is a risk factor for incomplete vaccination at 18 and 24 months. *Journal of Infection*, 78(2): 134–139.

**Yi, P., Chen, R., Huang, Y., Zhou, R.-R., & Fan, X.-G. (2016).** Management of mother-to-child transmission of hepatitis B virus: propositions and challenges. *Journal of Clinical Virology*, 77: 32-39.