



MOTHERS' AWARENESS REGARDING HEPATITIS A VIRUS AMONG CHILDREN IN A RURAL AREA

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Abstract

Background: Hepatitis A is a form of viral hepatitis which spread through feco_oral route. It is most common among children and require more attention from health care personal.

The Aim of the study: Is to evaluate mothers' awareness regarding hepatitis A virus among children in a rural area.

Design: A descriptive correlational research design was used.

Setting: This study was conducted at EL Raheb village, ShebinElkom Center, Menofia Governorate.

Sample: A multi stage random sample of 315 mothers.

Tools: Two tools were used for data collection, **tool I:** Structured interviewing questionnaire includes four parts; mothers' demographic characteristics, home environmental conditions, mothers' knowledge and attitude regarding hepatitis A virus, **tool II:** Observational checklist for mothers to assess their practices regarding hepatitis A virus.

Results: There were 83.8% of the studied mothers had poor knowledge, 8.3% had average and 7.9% had good level of knowledge regarding hepatitis A virus. Also, 84.5% of the studied mothers had positive attitude while 15.5% of them had negative attitude toward hepatitis A virus. In addition, 83.8% of the studied mothers had adequate level of total practices and 16.2% of them had inadequate level of total practices regarding hepatitis A virus. There were statistically significant relation between demographic characteristics and knowledge, attitude and practices among the studied mothers.

Conclusion: The majority of the studied mothers had poor level of knowledge, positive attitude and adequate level of practices regarding hepatitis A virus.

Recommendations: Implementing health educational programs should be applied in a large scale at maternal and child health center to improve mothers' knowledge, attitude and practices regarding hepatitis A virus among children.

Keywords: Hepatitis A virus, Mothers' awareness, Rural area.

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1. INTRODUCTION

Hepatitis is an acute or chronic inflammation of the liver caused by several viral or bacterial infections, fungal, parasitic infections, chemical and drug toxicity. Five distinct viruses have been identified as causing hepatitis: hepatitis A virus, hepatitis B virus, hepatitis C virus, hepatitis D virus and hepatitis E virus. Hepatitis A is an infection of the liver causing swelling and inflamed tissue of the liver due to hepatitis A virus (a germ that can make child sick). Hepatitis A virus (HAV) is typically acquired through fecal-oral transmission and replicates in the liver. Hepatitis A is the most common type of hepatitis in children that found in the stool and blood of an infected child (Rakesh et al., 2017).

Risk factors of hepatitis A virus infection in children include the following: coming in contact with stool of a child who has the disease, eating or drinking food as (fruits, vegetables and shellfish) or water that has been contaminated by stool containing HAV. In addition, being lifted or carried by someone with the disease who does not wash their hands after using the bathroom, and traveling to another country without being vaccinated for hepatitis A. In addition, children can get hepatitis A at day care center from other children or from child care workers who have the virus and do not practice good hygiene (Aboubakr et al., 2019).

Symptoms of hepatitis A are generally mild, nonspecific symptoms without jaundice or asymptomatic. Initially, the child experiences nausea, vomiting, anorexia, slight fever, fatigue,

headache and abdominal pain in the epigastrium or upper right quadrant. The flu like symptoms last approximately one week and may be so mild that they go unnoticed in infants and young children. Following this period, jaundice may develop, beginning with darkening of the urine and graycolored stool, followed by yellowing of the skin and sclera. Hepatitis A has short viremic phase and its incubation period is about four weeks (Hamza et al., 2017).

Diagnosis of hepatitis A is based on history specifically exposure to the hepatitis A virus, physical examination, liver function tests and serologic testing for markers of hepatitis A, B and C. Diagnosis is confirmed by the presence of antigens or antibodies formed in response to specific hepatitis A virus. Also, stool analysis is used (Yoshida et al., 2017). People typically recover from hepatitis A without complications because hepatitis A virus infection doesn't cause long term damage and it doesn't become chronic. In rare cases, hepatitis A may lead to liver failure (Su et al., 2019).

Prevention of HAV includes, proper following standard precautions, hand washing which is necessary after going to the toilet, changing a diaper, before preparing or eating food, taking hepatitis A vaccine, which is approved for children ages one to 18 years of age. Two doses are administered at least six months apart. Also, children who have been exposed to a person with HAV should receive standard immune globulin within two weeks of exposure. Immune globulin when given in this time is 80-90% effective in preventing hepatitis A virus infection (Kroneman et al., 2018).

Treatment of hepatitis A involves largely supportive therapy. The goals of treatment include supporting, monitoring and preventing spread of the disease. Medications may be used to correct any abnormalities associated with liver dysfunction. Management of infected children is based on measures to rest the liver, promote cellular regeneration and prevent complications. Rest is essential focus on treatment to reduce the liver's metabolic demands and increase its blood supply. Treatment is aimed at maintaining comfort and providing adequate nutrition (Jefferies et al., 2018).

Rural areas are remote areas suffering from lack of access to health care because of routine health care and screening is limited. In rural areas, the rates of infection with the virus are high and the illness usually contracted in early childhood because people living in rural areas have lack of awareness and knowledge regarding hepatitis A virus, have poor socioeconomic conditions and most of the public are illiterate, which lead to resistance to change (Bennett et al., 2019).

Level of awareness of the mothers regarding hepatitis A virus infection plays an important role in HAV prevalence. So, community health nurse has vital role in preventing HAV by assessing the home and family conditions through home visit, providing an opportunity to render services to the family members in their own homes, and observing family practices. Also, community health nurse instruct mothers about home sanitation, safe practice for preparing and dispensing food, and availability of hepatitis A vaccine with different doses and schedules. In addition, community health nurse focus on increasing awareness for early identification of disease to avoid or prevent infection with HAV (Lefevre et al., 2022).

SIGNIFICANCE OF THE STUDY

Hepatitis A virus has worldwide distribution and endemic in most countries while the incidence is very high in developing countries and rural areas, it is estimated that 1-5 million cases of hepatitis A virus infections every year world wide. The prevalence were 90% by the age of 10 years world wide in low income countries. Hepatitis A virus has a greatest concern because of the burden of illness, and potential for outbreaks and death (Migueres et al., 2021).

The world health organization (WHO) estimates that there are 8-10 million people suffer from viral hepatitis in Egypt. While 50% or more of the Egyptian population are already exposed to hepatitis A virus by the age of 15. The prevalence exceed to 40.2% in Egypt. Also, the estimated case fatality ratio of hepatitis A was 0.1 % among children from birth to 15 years old (World Health Organization, 2020).

Mothers' awareness about hepatitis A virus prevention is very important because the mothers are the primary caregiver for their children. Mothers in rural areas have a major obstacle to prevent infection due to lack of knowledge and practices regarding hepatitis A infection, this make children easily infected (Ramaswamy et al., 2021). So, the investigator assess mothers' awareness regarding hepatitis A virus among children in rural areas.

AIM OF THE STUDY:

Assess mothers' awareness regarding hepatitis A virus among children in a rural area through the following objectives.

1. Assessing mothers' knowledge regarding hepatitis A virus among children in a rural area.
2. Appraising mothers' attitude regarding hepatitis A virus among children in a rural area.
3. Determining mothers' practices regarding hepatitis A virus infection among children in a rural area.

RESEARCH QUESTIONS

1. What are mothers' knowledge regarding hepatitis A virus among children in a rural area?

2. What are mothers' attitude regarding hepatitis A virus among children in a rural area?
3. What are mothers' practices regarding hepatitis A virus among children in a rural area?
4. Is there a relation between mothers' socio-demographic characteristics and their knowledge, attitude and practices?

2. SUBJECT AND METHODS

I. Technical design

Research design:

A descriptive correlational research design was applied to achieve the aim of this study.

The setting of the study:

The study was carried out in EL Raheb village, Shebin El Kom Center at Menofia Governorate, Egypt.

Sample:

A multi stage random sample was used to select 315 of the studied mothers from El Raheb village by the following stages:

1st age:

The total number of centers in Menoufia Governorate were 9 centers, The investigator selected one Center randomly through writing the name of the centers in separate papers and put them in a bowl to select one of them by simple random sample. The selected center was Shebin El kom Center.

2nd age:

Random sample was used to select one village from 36 villages in Shebin El kom Center. The investigator wrote the name of these villages in separate papers and put them in bowl to select one village. This village was El Raheb village, that village consists of 1723 houses.

3rd age:

A systematic random sample was used to select the sample from the village each five houses was selected.

4th age:

All mothers who had children in the selected homes would be included in the study through home visit. If the home didn't include children, the investigator took the next home.

Tools for data collection:

The researchers used two different tools:

1st tool: The researchers created an interview questionnaire after studying the relevant literature. It consists of four parts:

Part 1: Mothers' demographic characteristics as age, educational level and material status...etc.

Part 2: Home environmental condition as housing condition, bathroom type and cleaning of the bathroom...etc.

Part 3: Mothers' knowledge regarding hepatitis A virus among children in a rural area as meaning of HAV, causative agent of HAV and factors that contributed to the spread of HAV...etc.

Scoring system for knowledge:

Knowledge questions were scored as the following:

Complete correct answer = two points.

Incomplete correct = one point.

Incorrect answer/ Don't know = zero point.

The total knowledge score equal 34 points were calculated for each mother by adding the score of all items of the questionnaire and classified as follow:

Good knowledge >75% (> 52 points).

Average knowledge 50% - 75% (34-52 points).

Poor knowledge <50% (<34 points).

Part 4: Mothers' attitude toward hepatitis A virus :

This part consisted of four main items as health awareness, personal hygiene, food hygiene and environmental sanitation.

1) Health awareness consisted of 13 items as: If the mother thank the following: Consulting relatives and neighbors was better than going to the doctor, worried if one of her son's colleagues had viral hepatitis and the vaccine prevented infection with the virus.....etc.

2) Personal hygiene consisted of 3 items as:

If the mother thank the following: Washing a child's hands before and after eating and after the bath was necessary, raising children to take care of personal hygiene was necessary and sharing personal hygiene items with others was related to infection.

3) Food hygiene consisted of 8 items as:

If the mother thank the following: It was wrong to buy sweets from the street vendor, it was necessary to boil water before using it for drinking and had all food needs from a seller who was characterized by the cleanliness of his locality.....etc.

4) Environmental Sanitation consisted of 5 items as:

If the mother thank the following: The cleanliness of the street was one of the factors that reduced infection and animal breeding at home increased the possibility of infection.....etc.

Scoring system for attitude:

The mothers' attitude toward hepatitis A virus consisted of four main parts which included: 29 items were scored as the following:

- Agree = 3 Points.

- Neutral = 2 points.

- Disagree = 1 point.

The total attitude score equal 87 points were calculated for each mother by adding the score of all items of the questionnaire and classified as follow:

- Positive attitude $\geq 60\%$ (≥ 52 points).

- Negative attitude $< 60\%$ (< 52 points).

2nd tool: Observational checklist: It was observed by the researcher. This part is composed of four main parts:

1) Personal hygiene consisted of 8 items as:

The mothers performed personal hygiene needs, used personal hygiene equipment correctly and raised children to take care of personal hygiene.....etc.

2) Hand washing steps consisted of 8 items as:

Wet hands with clean running water, put soap on the hands by rubbing the soap between the hands and put soap on the back of the hands.....etc.

3) Food hygiene and home environment for food preparation consisted of 10 items as:

The mothers performed the following: boiled the stored water before using it for drinking, washed vegetables and fruits with running water and vinegar before eating and covered the food and not expose it to flies and insects.....etc.

4) Home hygiene consisted of 4 items as:

The use of disinfectants such as chlorine to clean the toilet, used disinfectants such as chlorine to clean animal breeding places and constant disposal of rubbish.....etc.

Scoring system for practices:

This part included 30 items which were scored as the following:

Done =one point.

Not done =zero point.

The total practices score equal 30 points were calculated for each mother by adding the score of all items of the observational checklist and classified as follow:

adequate level of practice $\geq 60\%$ (≥ 18 points).

Inadequate level of practice $< 60\%$ (< 18 points).

II. Operational design

a- Preparatory phase:

This phase comprised reviewing of past, current, national and international related literature and theoretical knowledge of various aspects of the study using books, articles, internet, periodicals and magazines to get a clear picture of the research problem and to develop tools for data collection.

Validity of tools

The validity of tools referred to relevance of the measuring tools as to whether the items in the tool appeared to be complete, reasonable, unambiguous and clear. The study tools were tested for validity through the judgments of three experts in Community Health Nursing and statistics to assess the content validity.

Reliability of tools

Reliability of the tools was tested to determine the extent to which the questionnaire items were related to each other. The internal consistency Cronbach's alpha in this study found that the reliability of this questionnaire was (0.86) for knowledge, (0.88) for practices and (0.86) for attitude.

Ethical considerations

An official permission to conduct the proposed study would be obtained from the Scientific Research Ethics Committee, Faculty of Nursing, Helwan University. Participation in the study is

voluntary and subjects would be given complete full information about the study and their role before signing the informed consent. The ethical considerations would include explaining the purpose and nature of the study, stating the possibility to withdraw at any time, confidentiality of the information where it would not be accessed by any other part without taking the permission of the participants. Ethics, values, culture and beliefs would be respected.

b- Pilot study

A pilot study was carried out on 10% (32 mothers) of the sample under study to evaluate the applicability, clarity, efficiency and feasibility of the tools, as well as, to estimate the time allowed to fulfill the developed tools. No modifications were done in the tool. So, those who participated in the pilot study were included in the main study sample.

c- Field work

- The study was conducted within the academic year 2023-2024.
- The data collection was done within the given period of three months from beginning of July 2022 to the end of September 2022 in El Raheb village using the development tools.
- Data collection of this study was carried out once permission was granted from Helwan University and Menofia q responsible authority of El Raheb village to proceed with the study.
- After establishing a trustful relationship, the investigator started data collection by introducing herself to the mothers in their homes and explained the aim of the study and its importance.
- The investigator was assured that the information collected would be treated confidentially and would be used only for the purpose of the study.
- Written permission had been obtained from each mother prior to data collection after explanation of the aim of the study.
- Data pertinent to the study variable were collected through structured face to face interview and all the tools filled by the investigator through interviewing the mothers was carried out in their homes, it took about 20-25 minutes to be fully filled.
- Data was collected in the morning from 9:00 am to 1:00 pm 2 days / week (Saturday and Tuesday).

3. RESULTS

Table (1) reveals that, 44.8% of the studied mothers were in age group 31-40 years with mean age 34.85 ± 6.27 years. Also, 58.4% of the studied mothers had secondary education and 89.5% of them were married. Family type was nuclear in 50.2% of the studied mothers and 50.8% of them had 1-<3 children. Additionally, 60.3% of the

studied mothers reported that they had enough family income.

Figure (1): Illustrates that, 83.8% of the studied mothers had poor level of knowledge. While, 8.3% of them had average level of knowledge and 7.9 % of them had good level of knowledge regarding hepatitis-A virus.

Figure (2): Illustrates that, 84.5% of the studied mothers had positive attitude while, 15.5% of them had negative attitude regarding hepatitis-A virus.

Figure (3): Illustrates that, 83.8% of the studied mothers had adequate level of practices while, 16.2% of them had inadequate level of practices regarding hepatitis A virus.

Table (2) shows that, there was no statistically significant relation between total level of knowledge of the studied mothers and all items of their demographic characteristics at P-value= >0.05 .

Table (3) shows that, there were statistically significant relation between total level of practices

of the studied mothers and all items of their demographic characteristics at P-value= ≤ 0.05 .

Table (4) shows that, there was a statistically significant relation between total level of attitude of the studied mothers and all items of their demographic characteristics at P-value= ≤ 0.05 except, family type and family income there were highly statistically significant at $p < 0.001$.

Table (5) shows that, there was no statistically significant positive correlation between total level of knowledge and total level of practices among the studied mothers (P-value=0.142). Additionally, there was a highly statistically significant positive correlation between total level of attitude and total level of practices among the studied mothers (P-value=0.000). Moreover, there was no statistically significant correlation between total level of attitude and total level of knowledge among the studied mothers (P-value=0.481).

Table (1): Frequency Distribution of Demographic Characteristics of the Studied Mothers (n=315).

Demographic characteristics	No	%
Age (in years)		
≤ 30	104	33.0
31-40	141	44.8
41-50	51	16.2
≥ 51	19	6.0
Mean \pm SD	34.85 \pm 6.27	
Educational level		
Illiterate	30	9.5
Read and write	28	8.9
Basic education	39	12.4
Secondary education	184	58.4
University	34	10.8
Marital status		
Married	282	89.5
Widowed	33	10.5
Type of family		
Nuclear	158	50.2
Extended	157	49.8
Number of children in family		
1-<3	160	50.8
3- ≤ 5	155	49.2
Family income		
Not enough	73	23.2
Enough	190	60.3
Enough and save	52	16.5

N.B: Divorced mothers were 0.0%.

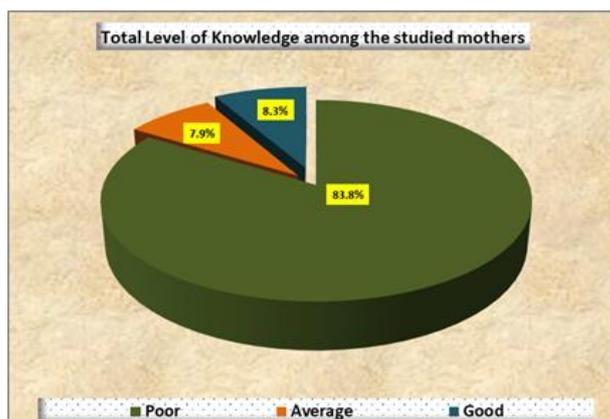


Figure (1): Percentage Distribution of the Studied Mothers according to their Total Level of Knowledge (n=315).

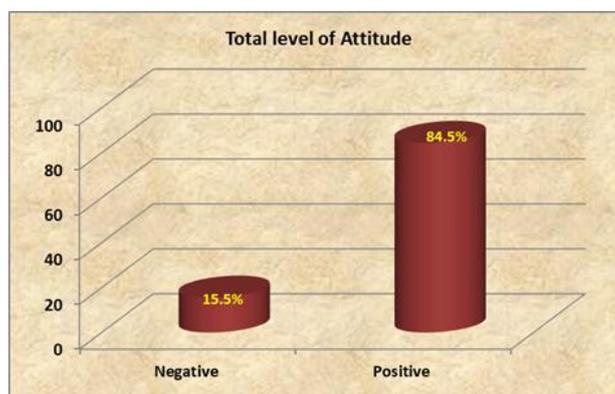


Figure (2): Percentage Distribution of the Studied Mothers according to their Total Level of Attitude toward Hepatitis A Virus Infection (n=315).

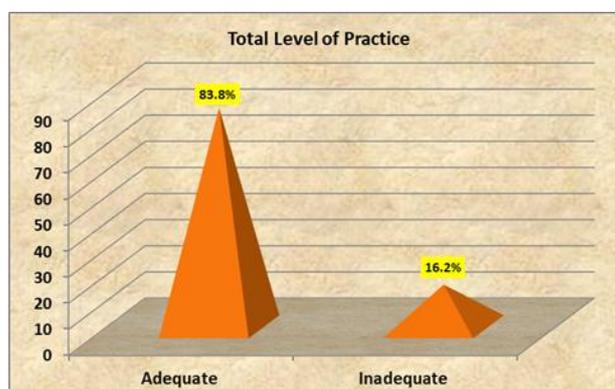


Figure (3): Percentage Distribution of the Studied Mothers according to their Total Level of Practices regarding Hepatitis A Virus Infection (n=315).

Table (2):Relation between Demographic Characteristics of the Studied Mothers and their Total Level of Knowledge (n=315).

Demographic characteristics	Total level of knowledge						X ²	P-value
	Poor		Average		Good			
	No	%	No	%	No	%		
Age (in years)								
<30	81	25.7	7	2.2	16	5.1	FET = 67.962	0.081
30-40	136	43.2	5	1.6	0	0.0		
40-50	38	12.1	11	3.5	2	0.6		
>50	9	2.9	2	0.6	8	2.5		
Educational level								
Illiterate	30	9.5	0	0.0	0	0.0	FET =	0.064

Read and write	28	8.8	0	0.0	0	0.0	98.519	
Basic education	33	10.5	6	1.9	0	0.0		
Secondary	158	50.2	17	5.4	9	2.9		
University	15	4.8	2	0.6	17	5.4		
Marital status								
Married	239	75.9	24	7.6	19	6.0	FET =	0.112
Widowed	25	7.9	1	0.3	7	2.3	8.902	
Family type								
Nuclear	120	38.1	13	4.1	25	7.9	FET =	0.348
Extended	144	45.8	12	3.8	1	0.3	24.373	
Number of children								
1-<3	128	40.6	20	6.3	12	3.8	FET =	0.079
3-<5	136	43.2	5	1.6	14	4.5	9.319	
Family income								
Not enough	72	22.9	1	0.3	0	0.0	FET =	0.184
Enough	168	53.3	13	4.1	9	2.9	73.391	
Enough and save	24	7.6	11	3.5	17	5.4		

FET = Fisher Exact Test

Non-Significant at P-value > 0.05

Table (3):Relation between Demographic Characteristics of the Studied Mothers and their Total Level of Practices (n=315).

Demographic characteristics	Total level of practices				X ²	P-value
	Adequate		Inadequate			
	No	%	No	%		
Age (in years)						
<30	93	29.5	11	3.5	14.821	0.002*
30-40	117	37.1	24	7.6		
40-50	35	11.1	16	5.1		
>50	19	6.1	0	0.0		
Educational level						
Illiterate	28	8.9	2	0.6	FET = 14.362	0.006*
Read and write	20	6.4	8	2.5		
Basic education	29	9.2	10	3.2		
Secondary	153	48.6	31	9.8		
University	34	10.8	0	0.0		
Marital status						
Married	231	73.3	51	16.2	7.121	0.002*
Widowed	33	10.5	0	0.0		
Family type						
Nuclear	142	45.1	16	5.1	8.590	0.003*
Extended	122	38.7	35	11.1		
Number of children						
1-<3	125	39.7	35	11.1	7.743	0.006*
3-<5	139	44.1	16	5.1		
Family income						
Not enough	65	20.6	8	2.5	FET = 6.872	0.032*
Enough	151	47.9	39	12.4		
Enough and save	48	15.2	4	1.4		

FET = Fisher Exact Test

* Statistically significant at p ≤ 0.05

Table (4):Relation between Demographic Characteristics of the Studied Mothers and their Total Level of Attitude (n=315).

Demographic characteristics	Total level of Attitude				X ²	P-value
	Negative		Positive			
	No	%	No	%		
Age (in years)						
<30	9	2.9	95	30.2	FET= 13.658	0.003*
30-40	26	8.3	115	36.5		
40-50	14	4.4	37	11.7		
>50	0	0.0	19	6.0		
Educational level						
Illiterate	4	1.3	26	8.3	FET= 13.116	0.011*
Read and write	8	2.5	20	6.3		
Basic education	10	3.2	29	9.2		
Secondary	27	8.6	157	49.8		
University	0	0.0	34	10.8		
Marital status						
Married	49	15.6	233	74.0	6.790	0.009*
Widow	0	0.0	33	10.4		
Family type						
Nuclear	12	3.8	146	46.3	15.293	0.000**
Extended	37	11.7	120	38.2		
Number of children						
1-<3	31	9.8	129	41.0	3.611	0.057*
3-≤5	18	5.7	137	43.5		
Family income						
Not enough	8	2.5	65	20.6	16.001	0.000**
Enough	41	13.1	149	47.3		
Enough and save	0	0.0	52	16.5		

FET = Fisher Exact Test

* Statically significant at P-value ≤ 0.05

**Highly statically significant at p < 0.001

Table (5):Correlation between Total Level of Knowledge, Practices and Attitude among the Studied Mothers (n=315).

Variables	level of knowledge		Level of Practices	
	r	P-value	r	P-value
Level of Practices	0.246	0.142		
Level of Attitude	0.518	0.481	0.628	0.000**

Non –Significant at P-value > 0.05

**Highly statically significant at p < 0.001

4. DISCUSSION

Hepatitis A is a liver disease caused by the hepatitis A virus. The virus is primarily spread when an uninfected and unvaccinated person ingests food or water that is contaminated with the feces of an infected person. The disease is closely associated with unsafe water, inadequate sanitation, and poor personal hygiene (Ridpath et al., 2017). Hepatitis A virus is considered as highly transmissible and one of the most frequent causes of food borne infections. It occurs worldwide, both sporadically and epidemically with a tendency for cyclic recurrences in time. It is more common among children. So, it requires more attention from health care provider (Koenig et al., 2017).

Rural area is an open swath of land that has few homes, or other buildings. A rural's population density is very low and agriculture is the primary industry among them. Lifestyle in rural areas are different from those in urban areas because of limited services, people use their vehicles, walk or ride on an animal. Governmental services like law enforcement, schools, fire departments and libraries are limited or unavailable. The most critical issues in rural health are lack of access to health care as clinics and hospitals because it may far or low socioeconomic status. Rural areas are characterized by higher rates of certain substance use such as cigarette smoking and prevalence of chronic health problems such as high blood pressure, Diabetes, Viral hepatitis, obesity, suicide and drug overdose (Centers for Disease Control and Prevention, 2020). So, the aim of this study is to assess

mothers' awareness regarding hepatitis A virus among children in rural areas.

Regarding to demographic characteristics and environmental conditions of the studied mothers, the findings of the present study indicated that less than half of the studied mothers were in age group 31-40 years, more than half of them had secondary education and most of them were married. Also, the findings revealed that nearly half of the studied mothers had nuclear family type, had less than three children and enough family income (table 1). These findings were disagreed with Sheha et al., (2020), who conducted their study in Senover village, El-Fayoum, Egypt about "effect of educational program on mother's Knowledge and practice regarding hepatitis C virus in rural areas", (n= 90), revealed that 56.7% of the studied mothers were in the age group 18<28 years, 44.4% of them were primary or secondary education, 88.9% of them were married, 80.0% of them were housewives, 51.1% of them had large family more than 4 members and 65.6% of them had inadequate income. Also, these findings were supported by Sabola et al., (2022) in national liver institute, Menoufia university, Egypt about "effect of a designed nursing intervention on knowledge and fatigue among patients with liver cirrhosis", (n= 80), indicated that 45.0% of the studied patients were in age group 50-60 years and 87.5% of them had large family 3-5 members.

From investigator point of view this could be due to differences in sample characteristics and differences in population characteristics of other community.

According to research Q 1: what are the mothers' knowledge regarding hepatitis A virus among children in a rural area?

Regarding mothers' knowledge regarding hepatitis A virus among children in a rural area, this study illustrated that, more than three quarters of the studied mother had poor level of knowledge. While, less than one tenth of them had average level of knowledge and few of them had good level of knowledge regarding hepatitis-A virus. These findings were congruent with a study by Alotaibi et al., (2021) who carried out their study in Taif, Kingdom of Saudi Arabia about "exploration of knowledge, attitude, and practice among residents toward hepatitis viruses", (n= 549), found that 41.0% of the studied participants had low knowledge regarding hepatitis viruses. Also, 56.8% of them knew that types of hepatitis as A, B, C, D, and E are caused by viruses, 53.6% of them had moderate awareness on HAV vaccination and 61.0% of them knew that personal hygiene is effective in preventing Hepatitis A and E. In addition, the results were consistent with the findings of a study by Nazri et al., (2019) who carried out their study in international islamic university malaysiakuantan campus, Malaysia

about "knowledge, attitude and practice of Malaysian public university students on viral hepatitis", (n= 120), found 49.2% of the studied participants had moderate knowledge regarding vaccination of HAV.

From investigator point of view this might be due to low level of education among studied mothers lead to lack of knowledge about hepatitis A.

According to research Q 2: what are the mothers' attitude regarding hepatitis A virus among children in a rural area?

Regarding total level of attitude toward hepatitis A virus among the studied mothers, the findings of the present study reported that most of the studied mothers had positive attitude regarding personal hygiene, more than three quarters of them had positive attitude regarding health awareness, about three quarters of them had positive attitude regarding environmental sanitation while, two thirds of them had positive attitude regarding food hygiene (figure 2).

These findings were incongruent with Hachemi et al., (2023) who conducted their study in Rue Issad Abbes, QuedSmar, Algiers, Algeria about "cross-sectional survey of sausage consumers in Algeria: Prevalence and risk factors for development of food -borne illness and antibiotic use behavior", (n= 384), revealed that 43.02% of the studied respondents showed no satisfactory preventive measures at home and 57.4% of them which had children were more affected and more likely to get food borne diseases after sausage consumption.

From investigator point of view this may be due to prevalence of social technology in recent time increase mothers, awareness regarding safety hygienic practice and safety measures to prevent any infection.

According to research Q3: What are the mothers' practices regarding hepatitis A virus among children in a rural area?

Regarding total level of of practices regarding hepatitis A virus among the studied mothers, the findings of the present study reported that most of the studied mothers had adequate level of practices, while minority of them had inadequate level of practices (figure 3).

These findings disagreed with Yones et al., (2019) who conducted their study in Assuit university children hospital, Assuit about "assessment of in mothers' knowledge and practice regarding pinworm in general outpatients clinics", (n= 122), clarified that 95.9% of study group had inadequate level of practices at pre intervention. Also, the findings disagreed with Sharma et al., (2020) who conducted their study in Himachal Pradesh, India about "impact of educational intervention to mothers on child care and nutrition", (n= 150), revealed that 38.4% of the studied mothers had inadequate practices at pre intervention.

From investigator point of view this might be due to differences in sample characteristics.

According to research Q4: Is there a relation between mothers' demographic characteristics and their knowledge, attitude and practices?

According to relation between demographic characteristics of the studied mothers and their total level of knowledge, the findings of the current study showed that, there was no statistically significant relation between total level of knowledge of the studied mothers and all items of their demographic characteristics at p value = >0.05 (table 2).

These findings disagreed with Bali et al., (2021) who carried out their study in India about "seroprevalence of hepatitis A virus infection in children", ($n= 89$), showed that higher educated mothers had more impacts on the prevention of infection in her child and there was a significant relation between HAV seroprevalence and mother's occupation and social class.

From investigator point of view this might be due to difference in culture and demographic characteristics of mothers.

According to relation between demographic characteristics of the studied mothers and their total level of practices, the findings of the present study indicated that, there were statistically significant relation between total level of practices of the studied mothers and all items of their demographic characteristics at P -value ≤ 0.05 (table 3).

These findings were compatible with Soulah et al., (2011) revealed that a highly statistically significant correlation between total practices score and education ($p < 0.001$), additionally, there was statistically significant correlation between total practices scores and family size, occupation and income ($p < 0.05$), and there was no significant differences in age and marital status ($p > 0.05$). As well, Gizaw et al., (2018) revealed that a significant difference between mothers' practices and some demographic characteristics related to education and occupation.

From investigator point of view this might be due to education, family size and income among studied mothers, which have a strong impact on mothers practice against HAV.

According to relation between demographic characteristics of the studied mothers and their total level of attitude, the findings of the current study showed that, there was a statistically significant relation between total level of attitude of the studied mothers and all items of their demographic characteristics at p value = ≤ 0.05 , while there were highly statistically significant in family type and family income ($p < 0.001$) (table 4).

These findings were insimilarity with y Alotaibi et al., (2021) who revealed that there was no significant association between attitude of the

studied participants and the items of demographic characteristics ($p > 0.05$).

From investigator point of view this might be due to demographic characteristics among studied mothers had a strong impact on their attitude.

According to correlation between total level of knowledge, practices and attitude among the studied mothers, the findings of present study showed that, there was no statistically significant positive correlation between total level of knowledge and total level of practices among the studied mothers at p value ≤ 0.05 . Additionally, there was a highly statistically significant positive correlation between total level of attitude and total level of practices among the studied mothers at p value = 0.000. Moreover, there was no statistically significant correlation between total level of attitude and total level of knowledge among the studied mothers at p value = 0.481 (table 5). These findings disagreed with Cruz et al., (2018) who carried out their study in Abu Dhabi, The United Arab Emirates (U.A.E.) about "Hepatitis A virus knowledge and immunization attitudes and practices in the United Arab Emirates community", ($n= 458$), found that 59.0% of the studied participants had poor knowledge regarding immunization, 75.0% of them had inadequate level of practices regarding HAV infection. Additionally, 42.0% of them had positive attitude toward vaccination.

From investigator point of view this might be due to the good hygienic practices at home is one of the characteristics of the studied mothers regardless their level of knowledge.

5. Conclusion

On the light of results of the current study and answers of the research questions, it concluded that, nearly three quarters of the mothers had good general cleanliness of the house. The majority of the studied mothers had poor total level of knowledge, positive total attitude and adequate level of practices regarding hepatitis A virus. In addition, there was no statistically significant relation between total level of knowledge of the studied mothers and all items of their demographic characteristics. While, there were statistically significant relation between total level of attitude, total level of practices of the studied mothers and all items of their demographic characteristics.

6. RECOMMENDATIONS

On the light of the findings of the current study, the following recommendations are suggested:

- Dissemination of colored booklets, posters, brochures and pamphlets to increase mothers' awareness regarding hepatitis A virus among children in a rural area.
- Implementing health educational programs should be applied in a large scale at maternal and child health center to improve mothers' knowledge, attitude and practices regarding hepatitis A virus among children.
- Health educational courses should be held in a rural area for months about preventive measures of hepatitis A virus among children.
- Further researches are needed to study factors leading to spread of viral hepatitis A on a large sample size and other settings.

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