

## Research Article

# Home Based intervention for Mothers' Perception about Hepatitis A Virus

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Article History: | Received: 05.02.2020 | Accepted: 14.02.2020 | Published: 28.02.2020 |

**Abstract: Background:** A home-based intervention is a promising approach for early intervention about HAV that aims at improving mothers-child outcomes. **The aim of** this study was to examine the effect of home based intervention on improving mothers' perception about Hepatitis A virus. **Methods:** Design: A quasi-experimental (pre-post) design was utilized. Subjects: A multi stage random sample of 360 mothers through home visits in Shranees village, Quesna district at Menoufia Governorate, Egypt. **Instruments:** 1) Hepatitis A virus Interview Questionnaire to assess socio-demographic data and mother's perception of hepatitis A virus which included mothers' knowledge about hepatitis A virus and mothers' practices about HAV and 2) Observational checklist to assess home environment and to assess home feeding environment. **Results:** It was revealed that there was improvement in total knowledge post intervention than pre intervention (14.60±5.53, 10.13±5.50) respectively and there was a change in knowledge in the study group than control group at post intervention (4.48±5.16, 0.17±0.96) respectively. There was improvement in total practice post intervention than pre intervention (3.94±1.17, 2.98 ±1.90) respectively and there was a change in practice in the study group than control group at post intervention (0.97±1.34, 0.13±2.37) respectively. **Conclusion:** the present study revealed that application of home based intervention proved to be effective in raising the women's perception regarding Hepatitis A. Hence, it can lead to improving knowledge and practice. **Recommendations:** health educational programs should be launched to nursery workers, school workers and women in rural areas about infectious diseases. Also, it was recommended vaccination against hepatitis A for children at the preschool and school period.

**Keywords:** Home-based intervention, mothers' perception, and Hepatitis A virus.

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## INTRODUCTION

Hepatitis A virus (HAV) is considered as highly transmissible and one of the most frequent causes of food borne infections. It occurs worldwide, both sporadically and in the form of epidemics, with a tendency for cyclic recurrences in time (WHO. 2013). 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 (WHO. 2015).

Hepatitis A virus as in developing world about; 90% of children have been infected by age 10 and thus are immune by adulthood. It is more common in regions of the world with poor sanitation and not enough safe water (WHO. 2012). Hepatitis A virus occurs throughout the world, and humans are thought to be its principal host. The incidence of hepatitis A virus infection affects individuals of all ages, but children and young adults are more susceptible (American Academy of Pediatrics. 2009).

Globally, there are an estimated 1.4 million cases of hepatitis A occur worldwide every year (WHO. 2015). Areas of the world can be characterized as having high, intermediate and low endemicity for hepatitis A. In less developed countries with very poor sanitary and hygienic conditions, HAV infection is highly endemic and most persons become infected in early childhood. Because infection occurs at an early age when the disease is often asymptomatic, reported rates of the disease in these areas are relatively low and outbreaks are not common. Areas of high endemicity include most of Africa, Asia and Central and South America. Conditions which contribute to the propagation of the virus among young children in these areas include household crowding, poor levels of sanitation and inadequate water supplies (Wasley, A. et al., 2006; Jacobsen, K. H., & Wiersma, S. T. 2010).

Hepatitis outbreaks have occurred in a variety of settings, including community outbreaks due to contaminated water or food (cooked foods can transmit HAV if the cooking temperature is inadequate to kill the virus or if food is contaminated after cooking)

(Chodick, G. *et al.*, 2006), outbreaks in health care settings, and outbreaks among homeless individuals (Wiseman, R. 2016; Kushel, M. 2018; Foster, M. *et al.*, 2018; Abdal Aziz, A. M., & Awad, M. A. M. 2008). In 2017, more than 650 individuals in California were infected with hepatitis A (including 417 hospitalizations and 21 deaths), making this the largest outbreak in the United States in two decades (Salama, I. I. *et al.*, 2007).

Egypt was considered to be an area of high endemicity for HAV infection and represents a major cause of acute viral hepatitis, with the highest prevalence of infection in early childhood. All seroprevalence of hepatitis a in Egypt in all previous studies; range between 86.2% in Cairo, 89.4% in Alexandria and 100% in rural areas (Shoulah, A. E. R. S. *et al.*, 2011). Every year an estimated 1.4 million cases of hepatitis A occurs worldwide (W.H.O 2015). According to cross sectional study carried out on 426 children aged 3-18 years from low Socioeconomic status (SES) areas and 142 from high SES areas by Salama to determine seroprevalence of anti-hepatitis A virus (HAV) antibodies and potential risk factors for and age of contracting symptomatic hepatitis A infection among children of different socioeconomic status (SES) in Cairo Which show that “the all seroprevalence of hepatitis A in Egypt in all previous studies range between 86.2% in Cairo, 89.4% in Alexandria and 100% in rural areas and a similar high prevalence has been reported from Palestine (93.3 %) and Syria (89 %), intermediate prevalence of (52.4 %) has been recorded in Saudi Arabia” (Smith, C. M., & Maurer F. A. 2010).

A study conducted in Benha University hospital and Benha Fevers’ Hospital that carried out on 100 children with hepatitis (A) virus, and their mothers at rural areas by (Marica., & Jeanett. 2008) to assess mothers' care (knowledge & practice) for their preschool children with hepatitis (A) virus, and identify factors affecting mothers' knowledge and practice regarding their children care. The researcher demonstrated that “the hepatitis A virus is transmitted primarily by the faecal-oral route; that is when an uninfected person ingests food or water that has been contaminated with the faeces of an infected person. Also, waterborne outbreaks, though infrequent, are usually associated with sewage-contaminated or inadequately treated water. The virus can also be transmitted through close physical contact with an infectious person, although casual contact among people does not spread the virus” (W.H.O. 2015).

Home-Based Intervention (HBI) is an intensive type of mental health counseling designed to help stabilize difficult family situations so that children can continue to live at home and families can remain intact, and it is an intensive, time-limited process that takes place in your home and can help you and your family discover solutions to the challenges you face

which is conducted in the home to improve parents-child outcomes with the child, parents or other primary caregivers, and other family members through home visit (Dawson B. D., & Trapp R. G. 2001).

Community Health Nurse (CHN) places an important role in control and prevent hepatitis A disease through provide continues health education in how to avoid infection with HAV in different community setting, assess the risk of acquiring an infection, provide early identification and treatment of HAV. Also continues follow up to affect cases especially who have chronic disease or permanent impairment, and teach worker about infection control at work place (Meena, R. *et al.*, 2015).

#### AIM OF THE STUDY

The aim of this study was to examine the effect of home based intervention on improving mothers' perception (knowledge & practice) about Hepatitis A virus.

#### RESEARCH HYPOTHESIS

1. Mothers who receive home based intervention will have better perception (knowledge & practice) than who not receive intervention.
2. Mothers who receive home based intervention will have better perception (knowledge & practice) than before implementation of intervention.

#### Operational definition

**Perception: It was defined as** “how mothers’ perceive (knowledge, beliefs and attitudes) the importance of home based intervention in their clinical setting”.

## METHODS

**Design:** - Quasi-experimental (pre-post) design (study and control group) was utilized to examine the effect of home based intervention on improving mothers' perception about Hepatitis A virus.

**Settings:**-This study was conducted at Shranees village, Quesna center at Menoufia Governorate, Egypt. **The village characterized by:**

- Rural area.
- Have different sociodemographic variables of population.

#### **Sample:-**

A multi stage random sample was used to select 189 women from Shranees village, Quesna center at Menoufia Governorate, Egypt.

#### **Sampling technique: -**

The technique used to select the sample was:-

- (1) First stage random sample was used to select one center. The governorate consists of nine centers. The researcher wrote the name of

those centers in separate papers and put them in a bowl to select one district by simple random sample. The center was Quesna center.

- (2) Second stage random sample was used to select one village. That center consists of 47 villages. The researcher wrote the name of these villages in separate papers and put them in a random bowl to select one village. This village was Shranees village. That village consists of 1750 houses and the village divided into four geographic sectors.
- (3) Third stage; a systematic random sample was used to select the subjects from each geographic sector each 4 houses such as: (4 case, 8 control, 12 case, 16 control, 20 case .....and so on).

**Sample Size:-**

Sample size was calculated to be 189 for each group according to:

Steven Thimpson equation  $n = \frac{N \times P (1-P)}{\{( (N-1) \times (d^2 / Z^2) \} + P (1-P)}$

- n=Sample size
- N=Total society size =350
- d=error percentage = (0.05)
- P=percentage of availability of the character and objectivity= (0.5)
- Z=The corresponding standard class of significance 95%= (1.96)
- $n=350 \times (0.5 \times 0.5) / 349 \times 0.05^2 / 1.96^2 + (0.5 \times 0.5)$
- $n=350 \times 0.25 / 649 \times 0.002 / 3.84 + 0.25$
- $n=87 / 0.46=189$

**Sample size = 189**

**Data Collection Instruments:-**

Data was collected through personal interview during home visit.

- 1) **Hepatitis A virus Interview Questionnaire to assess:**
  - A. Socio-demographic data which consists of 4 items included the following: (educational level, occupation, number of family members, family income).
  - B. Mother's perception of hepatitis A virus which included:
    - a) Mothers' knowledge about hepatitis A virus which consists of 14 questions such as: (definition of HAV, signs and symptoms of HAV,.....ects.).
    - b) Mother's practices about hepatitis A virus which consists of 5 questions such as: (Do you careful to wash your hands and your children well after using toilet, Do you careful to wash your

hands and your children well before eating,.....ects.).

**Knowledge scoring:** it ranged from 4 (all wrong answers) to 22 (all correct answer). The total score was categorized into three main categories:

1. Poor Knowledge (less than 50 %) (4-12).
2. Fair Knowledge (50-75 %) (13-16).
3. Good Knowledge (>75 %) (17-22).

**Practice scoring:** it range from 0 (all wrong practice) to 5 (all correct practice). The total score was categorized into two main categories:

1. Poor practice (0-3).
2. Good practice (4-5).

**Observational checklist:**

a) To assess home environment which included: home condition, number of home's rooms, type of bathroom sanitation, the kitchen, ventilation level of home, source of drinking water at home, home lighting source, lighting level at home, sort of sewage, source of cooking food, place of food preparation, the method of waste disposal.

b) To assess home feeding environment.

**Reliability of the tools:**

Test-retest reliability was conducted on 35 women twice with an interval of 2 weeks by applying tools. The 35 women were not included from the main sample. The test-retest reliability was **Cronbach's Alpha = 0.865**.

**Validity of the tools:**

Validity of the instrument was determine by 5 experts at community health nursing department, faculty of nursing at Menoufia university who reviewed tools and judged that they measured what they intended to measure (face validity). Experts were also asked to judge the items for their adequacy (content validity).

**Pilot Study** was conducted to test the practicality and applicability of the questionnaire and to detect the problems that may encounter during data collection. Also to help to estimate the time needed to fill the questionnaire. It was conducted on a sample of 10% of total sample (35 mothers). The results of piloting were used to finalize tools and schedule the field work time needed. **Some changes were made such as:**

- Removed some repeated questions.
- Tabulated questions of mothers' perception about HAV.

**Ethical Consideration**

The written consent for participation of the subjects was taken after the aim of the study was explained to them. Before data collection, the women were informed about the aim of the study and what would be done with the results. They were given the opportunity to refuse to participate and they could

withdraw at any stage of the research. Also, they were assured that the information would remain confidential and used for the research purpose only. The researcher gave copies from the educational intervention booklet about Hepatitis A to the group of women for achieving the ethical principles of research as well as the principle of beneficence.

The ethics committee approval is in the College of Nursing, Menoufia University, Egypt on the subject of research.

#### **Procedure and Data Collection:**

- Data were collected during the period of the time from the beginning of February 2015 to the end of July 2015.
- Data were collected from household women from Shranees village, Quesna center at Menoufia governorate.
- Questionnaire was filled by the researcher throughout the home visit.
- All participants were interviewed personally through home visit and written and oral consent were taken from the family after explaining the nature and the aim of the study.
- The intervention comprised of five home visits, one home visit every week for about 1 hour for three weeks, one follow-up visit after one month of the intervention and the last home visit was done after three months post intervention for the study group, and the data collection for the control group comprised of two visits.

#### **The initial visit:**

In the beginning, it was necessary for the researcher to introduce herself and explain to the subject the aim of the study, risks and benefits of the participating in the study.

The session took about one hour at subject home. The researcher distributed a copy of pre-test questionnaire for the study group and control group. The researcher filled the tool.

The researcher collected data through structured interviewed questionnaires about sociodemographic data of the mothers, the mothers' knowledge, mothers' practice and mothers' perception about HAV. Also, Observational checklist which included: observation of home environment and assessment of the home feeding environment.

During the first visit the educational intervention booklet about HAV was explained to the subject. At the end of the visit, the suitable day and time for the next visit was obtained.

#### **The second and the third visits:**

Each visit took about one hour at the subject's home.

- **During the second visit:** the researcher revised the previous session and discussed with the subjects some contents of the booklet such as:
  - Brief summary about HAV.
  - Definition of HAV.
  - Methods of transmission of HAV.
  - Clinical manifestation of HAV.

Subjects were given health education about hepatitis A virus supported by educational intervention booklet containing pictures.

- **During the third visit:** the researcher revised the previous session and discussed with the subjects another contents of the booklet such as:
  - High risk group of HAV.
  - Complication of HAV.
  - Treatment of HAV.
  - Prevention of HAV.

**At the end of the visit,** the subject was provided with an educational intervention booklet and the researcher left her phone number to the subject for answering any questions or concerns about the booklet. The suitable day and time for the next visit was obtained.

#### **The fourth visit (follow up):**

That visit was devoted to reinforce home based intervention, maintaining achievements and preventing relapses. Review the previous sessions, getting feedback from the subjects.

#### **The final visit was done after 3 months (post- test):**

- A questionnaire and observational checklist for the study group were filled by the researcher to assess the effectiveness of the home based intervention on improving mothers' perception about Hepatitis A virus.
- A questionnaire and observational checklist for control group were filled by the researcher (post-test), the control group was given a copy of educational intervention booklet.

#### **Content of educational intervention booklet:**

- Brief summary about HAV.
- Definition of HAV.
- Methods of transmission of HAV.
- Clinical manifestation of HAV.
- High risk group of HAV.
- Complication of HAV.
- Treatment of HAV.
- Prevention of HAV.

**Statistical analysis:**

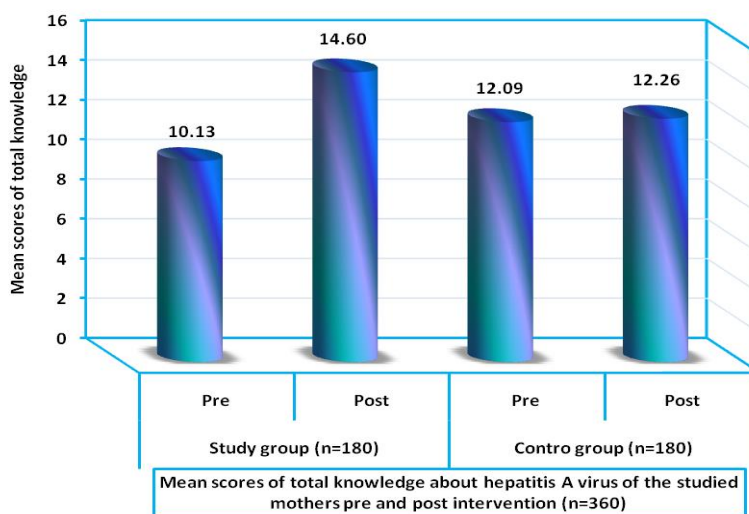
The collected data were organized, tabulated and statistically analyzed using SPSS software (Statistical Package for the Social Sciences, version 16, SPSS Inc. Chicago, IL, USA). For quantitative data, the range, mean and standard deviation were calculated. For qualitative data, comparison between two groups and more was done using Chi-square test ( $\chi^2$ ). For comparison between means of two groups of parametric data of independent samples, student t-test was used. For comparison between means of two groups of non-parametric data of independent samples, Z value of Mann-whitney test was used. For comparison between means of two related groups (pre & post data) of parametric data, paired t-test was used. For comparison

between more than two means of non-parametric data, Kruskal-Wallis ( $\chi^2$ ) was calculated. Correlation between variables was evaluated using Pearson's correlation coefficient (r). Significance was adopted at  $p < 0.05$  for interpretation of results of tests of significance (Sharma, S., & Nagar, S. 2006).

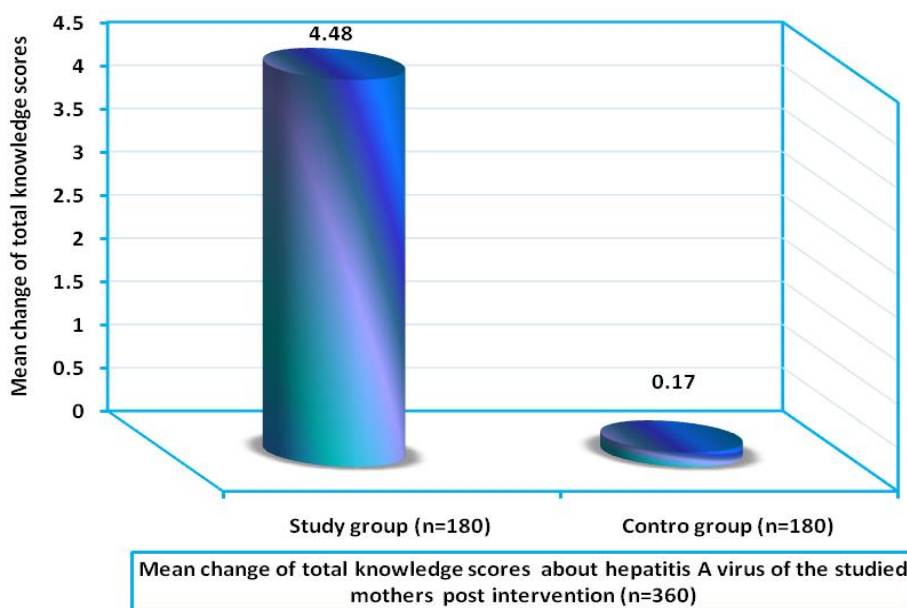
**RESULTS**

**Answering research hypothesis number (1):  
Figures: (W.H.O 2013;2015;2012)**

Mothers who receive home based intervention will have better perception (knowledge & practice) than who not receive intervention.



**Figure (1):** Mean scores of total knowledge about hepatitis A Virus of the mothers pre and post intervention (n=360).



**Figure (2):** Mean change of total knowledge scores about hepatitis A Virus of the mothers post intervention than pre intervention (n=360).

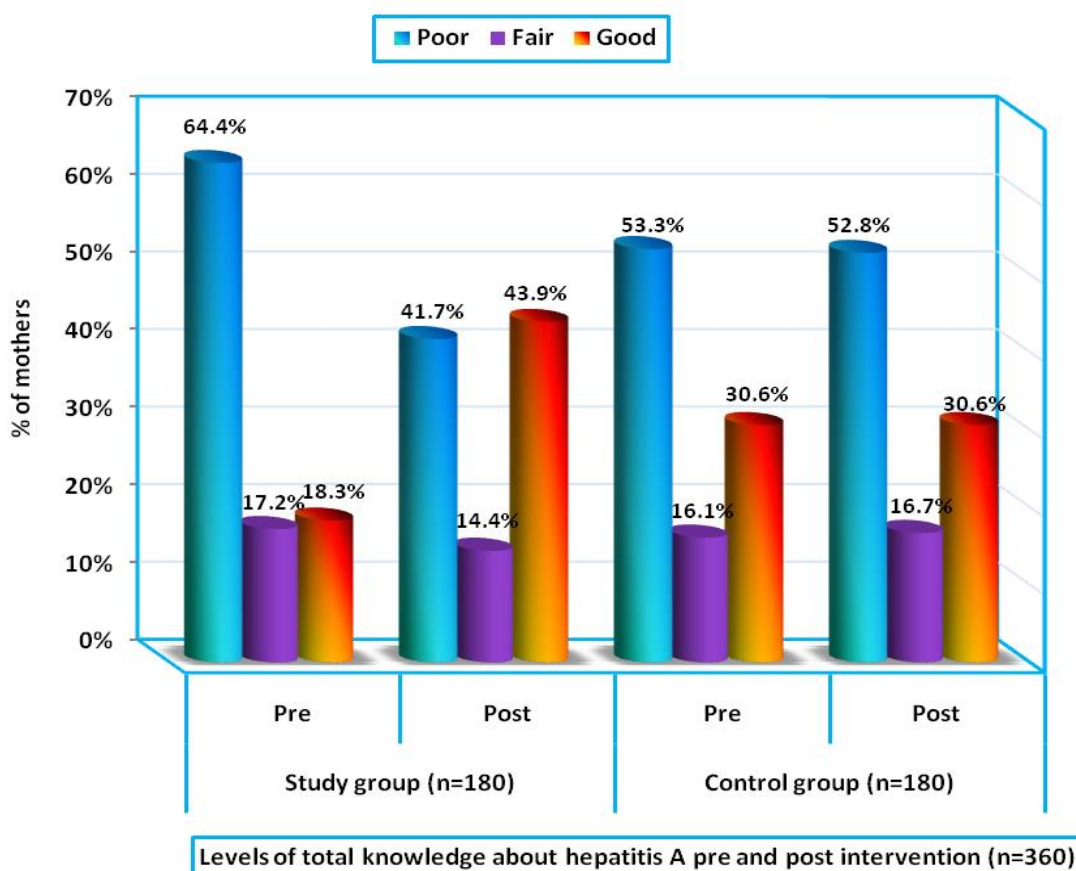


**Figures (1, 2)** demonstrates mean scores of knowledge and mean change of scores post intervention than pre intervention of the mothers about hepatitis A Virus. In the study group, related to mean scores of total knowledge, there was improvement in total knowledge post intervention than pre intervention ( $14.60 \pm 5.53$ ,  $10.13 \pm 5.50$ ) respectively. There was a statistical significant difference between total knowledge at post intervention and pre intervention where,  $p = (0.0001)$ .

While in control group, related to mean scores of total knowledge, there was very low improvement in total knowledge post intervention than pre intervention ( $12.26 \pm 5.93$ ,  $12.09 \pm 5.50$ ) respectively. There was no statistical significant difference between total knowledge at post intervention and pre intervention

where,  $p = (0.785)$ . Regarding mean change of knowledge score post intervention, there was a change in knowledge in the study group than control group at post intervention ( $4.48 \pm 5.16$ ,  $0.17 \pm 0.96$ ) respectively. Also, there was a statistical significant difference between the study group and control group at post intervention where  $p = (0.0001)$ .

In addition, regarding mean score of total knowledge, there was a statistical significant difference between the study group and control group at pre intervention where  $p = (0.001)$ . Also, there was a statistical significant difference between the study group and control group at post intervention where  $p = (0.0001)$ .



**Figure (3):** Levels of total knowledge of the mothers about hepatitis A Virus pre and post intervention (n=360).

**Figure (3)** demonstrates the comparison between levels of total knowledge of the mothers about hepatitis A Virus pre and post intervention. In the study group, about less than two third of the study group (64.4%) had poor knowledge at pre intervention while less than half (43.9%) had good knowledge at post intervention phase. Also, there was a statistical significant difference between pre intervention and post intervention phase where  $p = (0.0001)$ .

While in control group, about more than half of control group (53.3%) had poor knowledge at pre intervention while less than one third (30.6%) had good knowledge at post intervention phase. Also, there was no a statistical significant difference between pre intervention and post intervention phase where  $p = (0.989)$ .

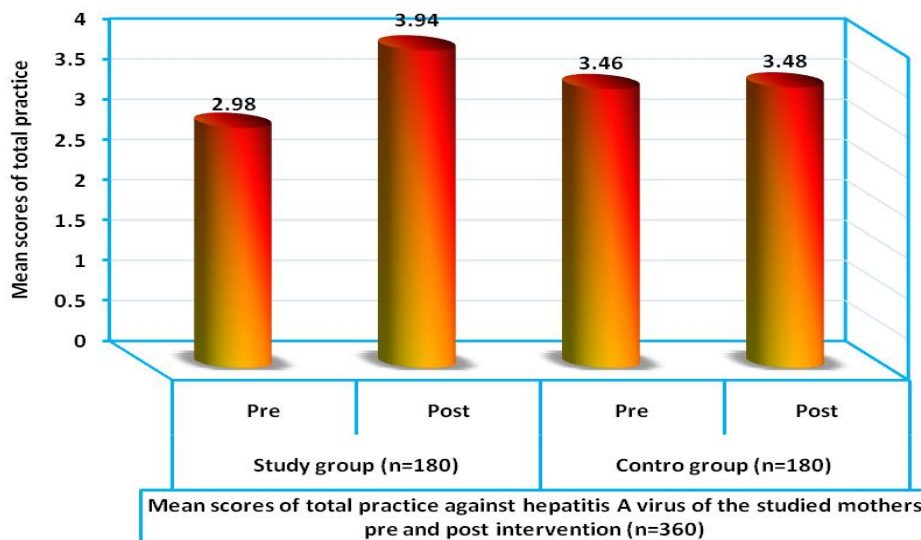
There was a statistical significant difference between the study group and control group regarding levels of total knowledge of the studied mothers about

hepatitis A virus at pre intervention and post intervention phase where  $p = (0.024, 0.031)$  respectively.

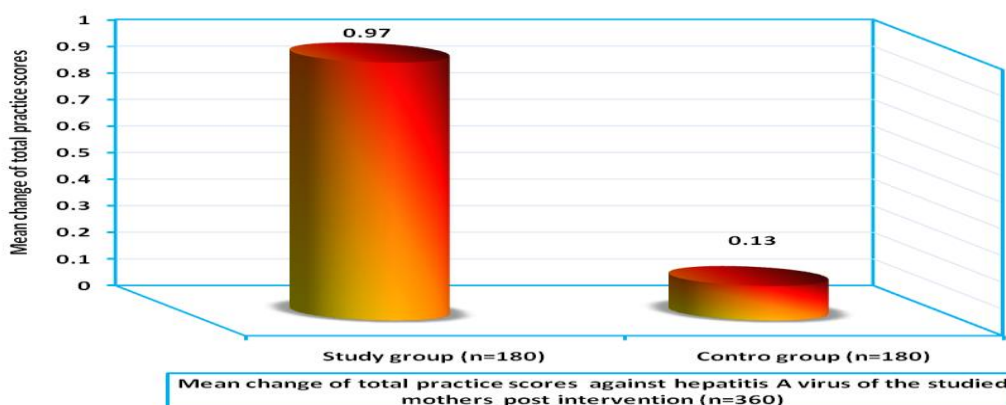
**Answering research hypothesis number (2):** (American Academy of Pediatrics. 2009; Wasley, A.

**et al., 2006; Jacobsen, K. H., & Wiersma, S. T. 2010) & table (1)**

Mothers who receive home based intervention will have better perception (knowledge & practice) than before implementation of intervention.



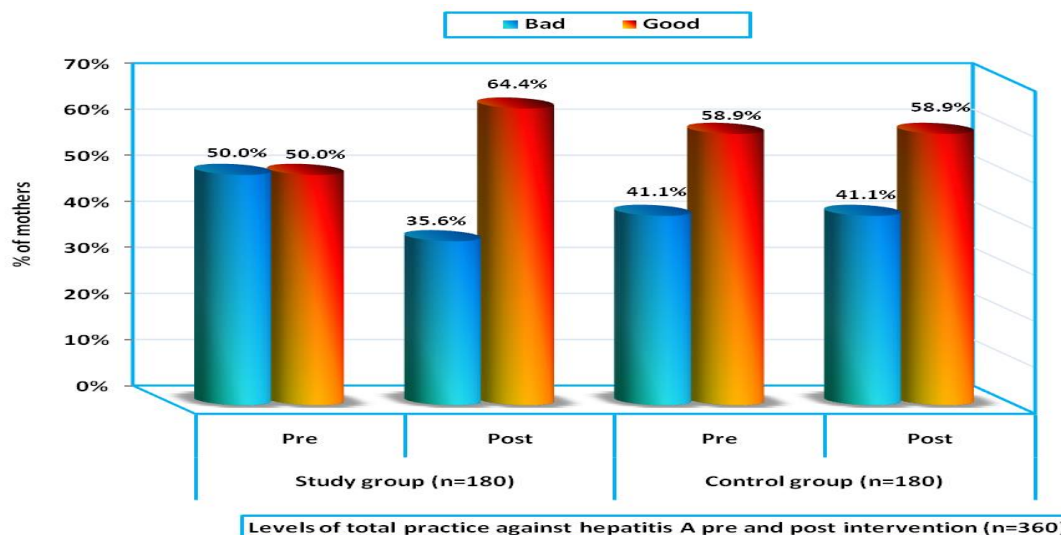
**Figure (4):** Mean scores of total practice against hepatitis A Virus of the mothers pre and post intervention (n=360).



**Figure (5):** Mean change of total practice scores against hepatitis A Virus of the mothers post intervention than pre intervention (n=360).

**Figures (4, 5)** demonstrate mean scores of practice and mean change of scores post intervention than pre intervention of the mothers about hepatitis A Virus. In the study group, related to mean scores of total practice, there was improvement in total practice post intervention than pre intervention (3.94±1.17, 2.98±1.90) respectively. There was a statistical significant difference between total practice at post intervention and pre intervention where,  $p = (0.0001)$ . While in control group, related to mean scores of total practice, there was no improvement in total practice

post intervention than pre intervention (3.48±1.71, 3.46±1.71) respectively. There was no a statistical significant difference between total practice at post intervention and pre intervention where,  $p = (0.926)$ . Regarding mean change of practice score post intervention, there was a change in practice in the study group than control group at post intervention (0.97±1.34, 0.13±2.37) respectively. Also, there was a statistical significant difference between the study group and control group at post intervention where  $p = (0.0001)$ .



**Figure (6):** Levels of total practice of the mothers against hepatitis A Virus pre and post intervention (n=360).

**Figure (6)** demonstrates the comparison between levels of total practice of the mothers about hepatitis A Virus pre and post intervention. In the study group, about half of the study group (50.0 %) had poor practice at pre intervention while less than two third (64.4 %) had good practice at post intervention phase. Also, there was a statistical significant difference

between pre intervention and post intervention phase where  $p = (0.006)$ .

There was no a statistical significant difference between the study group and control group regarding levels of total practice of the mothers about hepatitis A virus at pre intervention and post intervention phase where  $p = (0.112, 0.329)$  respectively.

**Table (1):** Mean change of total knowledge scores about hepatitis A virus of the studied mothers post intervention in relation to their demographic data (n=360).

Variables	Mean change of total knowledge scores of he studied mothers post intervention (n=360)			
	Study group (n=180)		Control group (n=180)	
	Mean±SD	Z value or $\chi^2$ value	Mean±SD	Z value or $\chi^2$ value
<b>Educational level:</b>		$\chi^2$ value		$\chi^2$ value
Illiterate	3.70±2.90	4.298	0.00±0.00	1.703
Primary education	3.82±4.80	0.231	0.30±1.33	0.639
Secondary education	5.30±7.13		0.14±0.80	
University education	6.50±6.40		0.17±0.91	
<b>Occupation:</b>		$\chi^2$ value		$\chi^2$ value
House wife	4.37±5.53	9.542	0.08±0.58	2.564
Worker	4.35±5.04	0.023*	0.14±0.80	0.464
Farmer	3.59±4.81		0.00±0.00	
Employee	5.81±5.15		0.37±1.49	
<b>No. of family members:</b>		Z value		Z value
1-4	5.43±5.96	2.341	0.23±1.15	0.678
>4	3.64±4.20	0.020*	0.11±0.69	0.498
<b>Family income:</b>		$\chi^2$ value		$\chi^2$ value
Not enough	2.70±3.53	6.057	0.06±0.55	2.815
Enough	5.50±5.62	0.048*	0.39±1.51	0.245
Enough and spare	4.37±5.22		0.17±0.86	

Study group=Mothers who received home based intervention

Control group= Mothers who did not receive home based intervention

\*Significant (P<0.05)

Z value of Mann-Whitney U test

$\chi^2$  value of Kruskal Wallis test



**Table (1)** shows mean change of total knowledge scores about hepatitis A virus of mothers post intervention in relation to their demographic data. In the study group, related to education, the mean change of total knowledge scores about hepatitis A virus of mothers who had university education was higher than illiterate. Related to occupation, the mean change of total knowledge scores about hepatitis A virus of mothers who were employees was higher than farmers. Related to number of family members, the mean change of total knowledge scores about hepatitis A virus of mothers who had from 1 to 4 children was higher than mothers who had more than 4 children. Related to family income, the mean change of total knowledge scores about hepatitis A virus of mothers who had enough income was higher than mothers who had not enough income.

In control group, related to education, the mean change of total knowledge scores about hepatitis A virus of mothers who had primary education was higher than illiterate. Related to occupation, the mean change of total knowledge scores about hepatitis A virus of mothers who were employees was higher than farmers. Related to number of family members, the mean change of total knowledge scores about hepatitis A virus of mothers who had from 1 to 4 children was higher than mothers who had more than 4 children. Related to family income, the mean change of total knowledge scores about hepatitis A virus of mothers who had enough income was higher than mothers who had not enough income.

## DISCUSSION

Hepatitis A virus (HAV) is highly transmissible and one of the most frequent causes of food borne infections. It occurs worldwide, both sporadically and in the form of epidemics, with a tendency for cyclic recurrences in time. Every year an estimated 1.4 million cases of hepatitis A occurs worldwide (WHO, 2013).

The aim of the study was to examine the effect of home based intervention on improving mothers' perception about Hepatitis A virus.

Regarding mean scores of knowledge and mean change of scores post intervention than pre intervention of the mothers about hepatitis A Virus the present study clarified that in the study group, related to mean scores of total knowledge, there was improvement in total knowledge post intervention than pre intervention ( $14.60 \pm 5.53$ ,  $10.13 \pm 5.50$ ) respectively. While in control group, related to mean scores of total knowledge, there was very low improvement in total knowledge post intervention than pre intervention ( $12.26 \pm 5.93$ ,  $12.09 \pm 5.50$ ) respectively. It might be due to that home based intervention increased knowledge of mothers (Figures 1, 2). This finding supported by

(Kumar, P. et al., 2014), who studied “the effectiveness of planned teaching programme on knowledge among mothers of school children (6-14 yrs) regarding hepatitis A & E at Anakaputhur, India”. The researcher revealed that “after post test after administration of planned teaching programme the knowledge score was improved”.

Also, the finding was supported by (Mobarak, A. et al., 2011), who determined impact of educational intervention to mothers regarding knowledge on child care and nutrition, in Himachal Pradesh, India. The researcher revealed that “the knowledge of mothers regarding aspects of child care and nutrition is given after providing intervention; it was observed that the mean scores of mothers in both groups had shown an increase but as compared to the control group, the experimental group mothers had better knowledge on different aspects of child care”. It might be due to implementation of home based intervention increased study group mothers' knowledge related to HAV.

Concerning levels of total knowledge of the mothers about hepatitis A Virus pre and post intervention the present study clarified that in the study group, about less than two third of the study group (64.4 %) had poor knowledge at pre intervention while less than half had good knowledge at post intervention phase. Also, there was a statistical significant difference between pre intervention and post intervention phase where  $p = (0.0001)$ . While in control group, about more than half of control group had poor knowledge at pre intervention while less than one third (30.6 %) had good knowledge at post intervention phase. Also, there was no a statistical significant difference between pre intervention and post intervention phase where  $p = (0.989)$  (Figure 3). This finding supported by (Kumar, P. et al., 2014), who studied “the effectiveness of planned teaching programme on knowledge among mothers of school children (6-14 yrs) regarding hepatitis A & E at Anakaputhur, India”. The researcher revealed that “the level of knowledge of mothers of school children regarding hepatitis A & E, in the pre test, 36.6% of mothers had inadequate knowledge, 56.6% of mothers of school children had moderate adequate and 6.6% of mothers of school children had adequate knowledge and in the post test, no mothers of school children are found to have in adequate knowledge, 13.4% of mothers of school children had moderate adequate knowledge, 86.6% of mothers of school children had adequate knowledge”.

Also, this findings supported by (Osman, M. 2008), who assessed “the effectiveness of structural teaching programme on knowledge regarding the oral rehydration therapy in management of diarrhea among mothers of under five children in selected community in Rajasthan”. The researcher demonstrated that “the pre-test and post- test mean knowledge score of control

group was not statistically significant, whereas the pre-test and post- test mean knowledge score of experimental group was highly significant at  $p < 0.001$ , structured teaching program had definite impact to increase the knowledge level of mothers in experimental group”.

Also, the findings similar to (Elsayed, E. M., & Mahmoud, F. Sh. 2012), who assessed “the mother's knowledge and practice to words pinworm and to design and implement the health education program for mothers of children with pin worm in general pediatric out-patient clinics at Assuit University Children Hospital”. The researcher demonstrated that “mother's knowledge about pin worm, the majority of mothers 96.7% had poor knowledge before the program and decreased compared to 85.4% and 80.5% respectively, in post test and follow up program”.

Also, the findings agreed with (Larson, E. L. et al., 2009), who assessed “family health care for children with food borne infection in Cairo, Egypt”. The researcher found in her study that “less than three quarters of mothers had poor level of total knowledge. It might be due to implementation of home based intervention has a positive effect on increasing study group mothers' levels of knowledge related to HAV”.

Concerning mean scores of practice and mean change of scores post intervention than pre intervention of the mothers about hepatitis A Virus, the present study clarified that in the study group, related to mean scores of total practice, there was improvement in total practice post intervention than pre intervention ( $3.94 \pm 1.17$ ,  $2.98 \pm 1.90$ ) respectively (Figures 4, 5). The finding agreed with (Verma, Y.S. et al., 2014), who assessed “the role of enhancement of maternal knowledge and practice in improving health status of children with cancer, the study was conducted in Oncology Institute of Tanta and Specialized Pediatric Hospital of Benha city from November 2009 to April 2010”. The researcher showed that “the total mean scores of mothers' practice about care provided to their children was improved post intervention ( $30.5 \pm 0.30$ ) compared by pre intervention ( $6.01 \pm 2.66$ ) ( $p < 0.05$ )”.

Also, the finding came in accordance with (Abdelmotaleb, G. S. et al., 2012), who assessed “the impact of a culturally appropriate, home-based educational intervention on the knowledge, attitudes, and practices regarding prevention and treatment of Upper Respiratory tract Infections (URIs) among urban Latinos in a predominantly Latino neighborhood of upper Manhattan, during an in-person home visit every 2 months”. They revealed “those participants' self-reported hand hygiene and vaccination practices improved, home-based educational intervention was successful in improving knowledge, attitudes, and self-reported practices among urban Latinos”. This means that implementation of home based intervention has a

positive effect on improving study group mothers' practices.

Regarding the levels of total practice of the mothers about hepatitis A Virus pre and post intervention; in the study group, half of the study group had poor practice at pre intervention while less than two third had good practice at post intervention phase. While in control group, about less than half of control group (41.1 %) had bad practice at pre intervention while more than half (58.9 %) had good practice at post intervention phase (Figure 6). The finding came in accordance with (Elsayed, E. M., & Mahmoud, F. Sh. 2012), who assessed “the mother's knowledge and practice to words pinworm and to design and implement the health education program for mothers of children with pin worm in general pediatric out-patient clinics at Assuit University Children Hospital”. The researcher demonstrated that “mother's level of practice about pin worm, 95.9% of the mothers scored poor before the program, while (80.5% and 75.6%) respectively scored good in post test and follow up program application”.

Also, the finding was supported by (Mobarak, A. et al., 2011), who determined “impact of educational intervention to mothers regarding knowledge on child care and nutrition, in Himachal Pradesh, India”. The researcher revealed that “after giving the proper education to mothers, majority of them had a good practice”. It might be due to implementation of home based intervention improved study group mothers' practices.

Regarding mean change of total knowledge scores about hepatitis A virus of mothers post intervention in relation to their demographic data. In the study group, related to education, the mean change of total knowledge scores about hepatitis A virus of mothers who had university education was higher than illiterate. Related to occupation, the mean change of total knowledge scores about hepatitis A virus of mothers who were employees was higher than farmers. Related to number of family members, the mean change of total knowledge scores about hepatitis A virus of mothers who had from 1 to 4 children was higher than mothers who had more than 4 children. Related to family income, the mean change of total knowledge scores about hepatitis A virus of mothers who had enough income was higher than mothers who had not enough income (Table 1). The findings agreed with, who studied “seroprevalence of hepatitis A virus infection in Children n out-patient department (OPD), department of pediatrics of medical college hospital in India”. The researcher revealed that “higher educated mother has more impacts on the prevention of infection in her child”.

Also, the finding agreed with who measured “the seroprevalence of HAV antibodies (HAV Ab) and identified some underlying factors determining it

among sample of children in Dakahilia". The researcher revealed that "there was a significant association between HAV seroprevalence and father's occupation, social class".

## CONCLUSIONS

Application of home based intervention proved to be effective in raising the women's perception regarding Hepatitis A. Hence, it can lead to improving knowledge and practice.

### RECOMMENDATION:

Health educational programs should be launched to nursery workers, school workers and women in rural areas about infectious diseases. Also, it was recommended vaccination against hepatitis A for children at the preschool and school period.

### LIMITATIONS of the STUDY:

There were not limitations of the study.

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