

# Assessment of Nurses' Knowledge and Practices toward Isolation Techniques among Children with Hepatitis at Pediatric Teaching Hospitals in Baghdad City

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**Abstract-** A descriptive study design carried out at the Pediatric Teaching Hospitals in Baghdad starting from November 22<sup>th</sup>, 2015 to the August 8<sup>th</sup>, 2016. In order assess the Nurses' Knowledge and Practices toward Isolation Techniques among Children with Hepatitis .

**Methodology:** Non probability (purposive) sample of (50) nurses are selected from isolation wards in pediatric teaching hospitals in Baghdad, and they have at least one year of experience in Pediatric Hospital. The study instruments consist of three major parts. The first part related to nurses' demographic data, the second part related to nurse's knowledge and composed of (58) Items and the third part is concerned with observational checklist and composed of (53) items of nurses' practices of isolation techniques among children with hepatitis. The data were collected through using constructed questionnaire, which is consisted of (121 ) items and filled by interview technique and observational checklist. Descriptive statistical analysis frequencies, percentage, standard deviation, mean of scores and relative sufficiency; and inferential statistical analysis are used for analysis (Anova) .

**Results:** The results of the study reveal adequate nurse's knowledge about isolation techniques among children with hepatitis, (56%) of the sample have very good knowledge toward isolation techniques among children with hepatitis, while evaluation of nurses' practices reveals (54%) have low practices toward isolation techniques among children with hepatitis, this result means that most of the nurses' practices have low scores. The findings reflect the significant relationship between nurse's knowledge and their marital status, and no significant relationship between nurse's knowledge and other demographic variables and a significant relationship between nurse's years of working in isolation wards, training session, and their practices no significant relationship between nurse's practices and their other demographic variables.

**Recommendation:** The study recommends that an educational and training program of isolation techniques among children with hepatitis is important for the nurses working in isolation wards, nurses' education level should be improved through an increasing the number of professional nurses employed in isolation wards.

**Index Terms-** Nurses' Knowledge, Practices Practice, Isolation Techniques .

## I. INTRODUCTION

The liver is a vital organ that processes nutrients, filters the blood, and fights infections. When the liver is inflamed or damaged, its function can be affected. Hepatitis is usually caused by a viral infection, it can also be caused by, bacteria, toxins, some medications, heavy alcohol use, or other diseases, such as autoimmune and metabolic illness. We can't live without a functioning liver. Almost all cells and tissues in the body depend on the liver. When something goes wrong with the liver, it can have a serious effect on almost every other organ in the body <sup>(1)</sup>. In the United States, hepatitis A, B, and C are the most common viruses that cause hepatitis and are of great public health significance. Hepatitis A is an acute disease often but with outbreak capacity. However, hepatitis B and C disease can become chronic, leading to life-threatening liver conditions <sup>(2)</sup>. Severe liver disease leading to cirrhosis, liver cancer, and/or liver failure requiring liver transplantation can occur during childhood but is very rare. Children infected with HCV probably do have some risk of developing these serious liver disease in adulthood, but the exact risks are not known at the present time <sup>(3)</sup>. Viral hepatitis places a heavy burden on the health care system because of the costs of treatment of liver failure and chronic liver disease. In many countries, viral hepatitis is the leading cause of liver transplants. Such end-stage treatments are expensive, easily reaching up to hundreds of thousands of dollars per person <sup>(4)</sup>. Viral hepatitis is arguably the most significant public health problem facing Iraq today. Some efforts are being made to raise awareness about hepatitis and their prevention through media, to make it more effective, we need to assess gaps in health education <sup>(5)</sup>.

## II. METHODOLOGY

### Objectives of the study

1. To assess the knowledge of pediatric nurses toward the isolation techniques among children with hepatitis.
2. To find –out the relationship between the knowledge of pediatric nurses and demographic characteristics such as (age , gender, level of education, years of experiences and years of employment).

**Design of the study:** A descriptive study is conducted on male and female pediatric nurses who are dealing with the children who experienced hepatitis to identify the nurses knowledge and practices concerning isolation techniques.

**Setting of the study:** The study is conducted in isolation wards at three hospitals in Baghdad . These hospitals include Child's Central Pediatric Teaching Hospital , Welfare Pediatric Teaching Hospital and Ibn ALKhateeb Hospital which deal with hepatitis.

**Sample of the study:** Non - probability (purposive) sample of (50) nurses who are composed of all nurses who provide care for the children with hepatitis in isolation wards.

**Study instrument:** The questionnaire was constructed for the purpose of study which includes the following parts:

**Part I:** Nurses' demographic characteristics

**Part II:** Nurses' Knowledge

**Part III:** Nurses' practice

**Method of data collection:** Data is collected through a direct interview with the nurses by using a constructed questionnaire. While for nurse's practices, data is collected

through the applications of concealed observation technique. Nurses are observed while they are working in isolation wards. Data collection was performed from April 3<sup>th</sup> until the 8<sup>th</sup> of June 2016.

**Validity and Reliability:** The content validity of the instrument was established through a panel of (14) experts, the reliability of the items were based on the internal consistency of the checklist was assessed by calculating Cronbach s' Alpha which as= 0.87 and 0.84 for nurses knowledge and practice respectively.

**Statistical analysis:** The statistical data analysis approach by using (SPSS-ver.20) is used in order to analyze and evaluate the data of the study. A descriptive statistical data analysis approach used to describe the study variables : Frequencies, Percentages, Mean of score and stander deviation. Inferential statistical data analysis approach: used by application of the ANOVA test.

### III. RESULTS

**Table 1: The distribution of the Sample According to their Demographic Characteristics**

No.	Characteristics	F	%	
1	<b>Gender:</b>	Male	15	30
		Female	35	70
		Total	50	100
2	<b>Age group:</b>	< 20 year	0	0
		20 -29 year	35	70
		30 – 39 year	13	26
		40 – 49 year	2	4
		50 ≤ year	0	0
		Total	50	100
4	<b>Level of educational</b>	Nursing intermediate school	2	4
		Nursing secondary school	22	44
		Nursing institute	12	24
		Nursing college/more	14	28
		Total	50	100
4	<b>Years of employment in hospital:</b>	1 – 5 year	34	68
		6 – 10 years	9	18
		11 – 15 year	7	14
		16 – 20 year	0	0
		21 ≤ year	0	0
		Total	50	100
5	<b>Years of working in isolation wards:</b>	1 – 5 year	38	76
		6 – 10 years	11	22
		11 – 15 year	1	2
		16 – 20 year	0	0
		21 ≤ year	0	0
		Total	50	100

**No:** Number, **F:** Frequency, **%** Percentage

This shows that most of the pediatric nurses are females with age group range between 20 – 29 years old (70%). Forty

four percent of them are graduated from nursing secondary school. Regarding years of employment, 68% of the nurses are

employed in hospital for 1 – 5 years which is the same period for their working in isolation wards (76%).

**Table 2: The Nurses' Knowledge towards Isolation Techniques for Children with Hepatitis (N=50)**

Levels Knowledge	Poor		Fair		Good		Very good		M.S	SD
	F	%	F	%	F	%	F	%		
General knowledge towards hepatitis	0	0	10	20	29	<b>58</b>	11	22	3.02	0.654
Knowledge of measures & standards for control and prevention of hepatitis	0	0	0	0	21	42	29	<b>58</b>	3.58	0.499
Knowledge of cleanliness for isolation ward	0	0	2	4	18	36	30	<b>60</b>	3.56	0.577
Knowledge of disinfection and sterilization	0	0	2	4	26	<b>52</b>	22	44	3.40	0.571
Knowledge of maintaining a documenting in a record of isolation ward	0	0	1	2	9	18	40	<b>80</b>	3.78	0.465
<b>Total</b>	0	0	0	0	22	44	28	<b>56</b>	3.56	0.501

**F: Frequency, %: Percentage, M.S: Mean of score, SD: Standard deviation**

This table indicates that half of pediatric nurses have very good level of total knowledge towards isolation techniques for children with hepatitis (56%). Regarding sub-domain of the knowledge scale, 58% of nurses have good level of general knowledge towards hepatitis and very good level of knowledge concerning measures and standards for prevention and control of

hepatitis; 60% of them have very good level of knowledge related to cleanliness of isolation ward; but 52% of them have good level of knowledge concerning disinfection and sterilization of isolation ward; and most of them (80%) show very good level of knowledge related to maintaining a documentation process of records in the isolation ward.

**Table 3: The Nurses' Practices towards Isolation Techniques for Children with Hepatitis (N=50)**

Levels Practices	Low		Moderate		High		M.S	SD
	F	%	F	%	F	%		
Hand washing	32	<b>64</b>	13	26	5	10	1.46	0.676
Wearing medical gloves and masks	18	36	30	<b>60</b>	2	4	1.68	0.551
Management of patient's room	49	<b>98</b>	1	2	0	0	1.02	0.141
Management of contaminated tools	1	2	39	<b>78</b>	10	20	2.18	0.438
Management of patient's safety	0	0	9	18	41	<b>82</b>	2.82	0.388
Management of patient's personal hygiene	50	<b>100</b>	0	0	0	0	1.00	0.001
Patient's Monitoring	18	36	32	<b>64</b>	0	0	1.64	0.485
Patient's Dietary	9	18	41	<b>82</b>	0	0	1.82	0.388
Nurses Education	37	<b>74</b>	2	4	11	22	1.48	0.839
Management related Visitors	48	<b>96</b>	2	4	0	0	1.04	0.839
<b>Total</b>	27	<b>54</b>	23	46	0	0	1.46	0.503

**F: Frequency, %: Percentage, M.S: Mean of score, SD: Standard deviation**

This table reveals that half of pediatric nurses are experiencing low practices in isolation techniques for children with hepatitis (54%) for the total score of the scale. The sub-domain of the practice scale shows that 64% of the nurses have low practices of hand washing; 60% of them have moderate practices in of wearing medical gloves and masks; the majority of them have low practices with management of patient's room (98%); 78% of them show moderate practices in management of

contaminated tools; the high percentage is reported in high level of practices in management of patient's safety (82%); all the nurses show low practices in management of patient's personal hygiene (100%); 64% of them experience moderate practices in patient's observation; regarding patient's nutrition, 82% of nurses show moderate practices; 74% of them have low practices in nurses and patients teaching and education; and 96% of them show low practices regarding management of visitors.

**Tables 4: The Significant Differences between Nurses' Knowledge Demographic Data:**

**Table 4-1: Significant Differences between Nurses' Knowledge and their Gender (N = 50)**

Demographic Data	Ratio	M	SD	t	df	Sig.	P<0.05
Gender	Male	91.66	10.535	0.143	48	0.887	N.S
	Female	91.20	9.930	0.146	28.076	0.885	N.S

**M: Mean, SD: Standard deviation, t: t-test, df: Degree of freedom, Sig: Significance, P: Probability value, N.S: Not significant**

This table reveals the significant relationships between the nurses' knowledge and their gender for the total score and the scores of sub-domain; the table indicates that there is no significant relationship between knowledge and nurse' gender at p-value ≤ 0.05.

**Table 4-2: The Analysis of Variance for Nurses' Knowledge with Respect to their Age Group (N=50)**

Knowledge	Sources of Variance	Sum of Square	df	Mean Square	F	P ≤ 0.05
Age	Between Group	5.794	2	2.897	0.026	0.974
	Within Group	5150.686	47	109.589		
	Total	5156.480	49			

**df: Degree of freedom, F: F-statistic, P: Probability value**

The analysis of variance in this table indicates that there is no significant relationship between the total and sub-domains of the nurses' knowledge with regarding to their age group at p-value ≤ 0.05.

**Table 4-3: The Analysis of Variance for Nurses' Knowledge with Respect to their Levels of Educational (N=50)**

Knowledge	Sources of Variance	Sum of Square	df	Mean Square	F	P ≤ 0.05
Educational Level	Between Group	271.008	3	90.336	0.851	0.473
	Within Group	4885.472	46	106.206		
	Total	5156.480	49			

**df: Degree of freedom, F: F-statistic, P: Probability value**

This table reveals that there is no significant relationship between the score of total knowledge and its sub-domains except the domain of general knowledge towards hepatitis which is significantly related with nurses' educational level at p-value ≤ 0.05.

**Table 4-4: The Analysis of Variance for Nurses' Knowledge with Respect to their Years of Employment in Hospital (N=50)**

Knowledge	Sources of Variance	Sum of Square	df	Mean Square	F	P ≤ 0.05
Years of Employment in Hospital	Between Group	113.014	2	56.507	0.527	0.594
	Within Group	5043.466	47	107.308		
	Total	5156.480	49			

**df: Degree of freedom, F: F-statistic, P: Probability value**

This table depicts that there is no significant relationship between the nurses' knowledge and their years of employment in hospital at p-value ≤ 0.05 for the total knowledge and its sub-domain.

**Table 4-5: The Analysis of Variance for Nurses' Knowledge with Respect to their Years of Working in Isolation Wards (N=50)**

Knowledge	Sources of Variance	Sum of Square	df	Mean Square	F	P ≤ 0.05
Years of Working in Isolation Wards	Between Group	135.437	2	67.718	0.634	0.535
	Within Group	5021.043	47	106.831		
	Total	5156.480	49			

**df: Degree of freedom, F: F-statistic, P: Probability value**

This table reveals that there is no significant relationship has been reported between the nurses' knowledge and their years of working in isolation wards at  $p\text{-value} \leq 0.05$ .

#### IV. DISCUSSION

##### Part I : The discussion of the nurse's demographic characteristic:

Through the data analysis distribution of demographic variables, the present study reports that the age range is between (less than 20 years to 50 years and more ) and the age majority is ( 20 – 29 )years which accounts for 35 (70%) the mean of the age is (25 years). This result agrees with Abdulla and Abdulla, (2014) who document that the age (20-29 years) is the most of the sample <sup>(6)</sup>. Kaur, et al., (2008) observe that most years old of the sample age at group (20-30) <sup>(7)</sup>. Most of the sample are females 35 (70%) this result agrees with Kamunge,(2013) who finds that 70.2% of the sample are females <sup>(8)</sup>. Also, Thomas, (2012) declare that females are 97.8% of his study <sup>(9)</sup>. 22 (44%) graduate from nursing high school. This finding agrees with Hassan and Hassan,(2012) who show in the study that the graduated from a secondary school of nursing are 42.5% of her study samples <sup>(10)</sup>.

Regarding the years of experience, 34 (68%) of nurses in this sample have between (1-5) years of experience in hospital This result disagrees with Chau, et al., (2010) who point out the 45% are a high percentage of the sample years of experience and have (>6) years of working experience <sup>(11)</sup>.

Regarding the years of experience, (76%) of nurses in this sample have between (1-5) years of experience in isolation wards. This result agrees with (Moosa 2012) finding who shows that (57.1%)of nurses have between (1-5) years of experience in emergency unit. They also agree with the result of study conducted by Al- Ibady (2011) who indicates that the highest percentage 70% have (1-5) years of experience in the leukemic wards <sup>(12)</sup>.

##### Part II: The Discussion of Nurses' knowledge Concerning Isolation Techniques in Isolation ward :

The result presented indicates that 58% of nurses having good level of general knowledge towards hepatitis . This result leads to decrease risk spread of infection for children with hepatitis. This result agrees with Taylor et.al, (2008) who state that the infection can be controlled by breaking the cycle of infection and one item of this cycle is the source of infection <sup>(13)</sup>. Regarding Measures and Standards for Control and Prevention of Hepatitis, results indicates that 58% of nurses having very good level of concerning measures and standards for the control and prevention of hepatitis infection. This result agrees with the CDC (2007) which has reported that the nursing staff should have a background about the principles of preventing the spread infection in all health care settings <sup>(14)</sup>.

Concerning Cleanliness for Isolation ward, results indicates that 60% of nurses having very good level of knowledge related to cleanliness of isolation ward. The results show that those nurses hav adequate infection about knowledge concerning isolation ward cleanliness and that those nurses should apply this knowledge to meet isolation ward needs and optimizing nursing action and care toward patients in isolation ward in order to

decrease the incidence of transmission of infection in the ward among the personnel.(the researcher) This finding agrees with the CDC (2007) which document that the health care workers including nursing staff should update their information on the basic principles of hand hygiene, barrier precautions, and isolation precautions that are included in their guideline for the isolation precautions to reduce the transmission risk of infection <sup>(14)</sup>.

Additional to the information concerning Disinfection and Sterilization, results indicates that 52% of nurses having good level of knowledge concerning sterilization and disinfection of isolation ward. This result agrees with literatures which explains and emphasizes the importance of cleaning any items and equipments used in isolation ward before disinfection or sterilization in order to reduce any dirt such as blood clot ...etc, in these equipment before being sterilized or disinfected. Also, result agrees with Alter and Tokars (2008) who state that the establishing of a written protocols for cleaning and disinfection of surfaces and equipment in the isolation ward, including careful mechanical cleaning before the disinfection process <sup>(15)</sup>.

The information about Maintaining a Documenting in a record of Isolation ward, results indicates that 80% of nurses having very good level of knowledge related to information about record keeping in patient's isolation ward record. These findings indicate that nurses who are working in isolation ward have adequate knowledge concerning record keeping in patients hepatitis record in isolation ward. This result agrees with study done by Shah and Ali ,(1996), which states the nurse must assess and monitor complete blood picture daily, places of hemorrhage and color and characteristic's of faces skin and urine, signs and symptoms of infection (temperature, pulse, and respiration, complications of chemotherapy (i.e., decrease account of white blood cells, hemoglobin, and platelets ), and signs and symptoms of increased intracranial pressure <sup>(16)</sup>.

##### Part III: Discussion of association between the Nurses' Knowledge and Demographic Data

The result of the present study reveals that there is no significant relationship between knowledge and nurses' gender at  $p\text{-value} \leq 0.05$ .. This result is not consistent with Mohamed et al., (2006) who find that there is a relationship between health care workers gender and their knowledge <sup>(17)</sup>.

Results indicates that there is no significant relationship between nurses' knowledge and age group at  $p\text{-value} \leq 0.05$ . This result agrees with Al-Ibady (2011) <sup>(12)</sup>.

Results reveals that there is no significant relationship between the score of total knowledge and its sub-domains except the domain of general knowledge towards hepatitis which is significantly related to nurses' educational level at  $p\text{-value} \leq 0.05$ . This result disagrees with Al-jaza iri (2007) that documents that the level of knowledge increases when the level of education has increased too <sup>(18)</sup>.

Findings of the present study indicates that there is no significant relationship between the nurses' knowledge and years of employment in hospital at  $p\text{-value} \leq 0.05$  for the total knowledge and its sub-domain. This result agrees with Paul (2007), who indicates that there is no significant relationship between nurses' knowledge and years of employment in hospital <sup>(19)</sup>.

The study shows that there is no significant relationship between total score of nurses' knowledge and their Years of Working in Isolation Wards at  $p$ -value  $\leq 0.05$ . This result agrees with Al-Ibady (2011) that documents no significant relationship between years of experience in leukemic wards and nurses' knowledge<sup>(12)</sup>.

## V. CONCLUSIONS

1. The Nurses demonstrate adequate knowledge about all aspect of isolation techniques for children with hepatitis generally, (56) of them have Very good knowledge and (44 ) have good knowledge.
2. Nurses knowledge have been not influenced by their gender, age, levels of education, employment in hospital, years of working in isolation wards.
3. The Nurses demonstrate inadequate practices about all aspect of isolation techniques for children with hepatitis generally, (54) of them have low practices and (46) have Moderate practices.

## VI. RECOMMENDATIONS

1. The training sessions should be regularly done and updated in view of changing practices.
2. The concept of infection prevention and infection control guidelines should be clarified among the hospital staff, especially the staff of isolation wards.
3. Encourage transmission barriers use (hand hygiene, personal protective equipment), especially the most important and simple procedures to reduce the infection 'hand hygiene'.
4. The pediatric nurses should be exposed to educational courses to raise their practices about the isolation techniques, with an emphasis on the parts that they were weak in.
5. Special training programs should be designed and constructed for nurses in isolation ward to reinforce their skill in isolation techniques and promote their experiences.

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