

Assessment of Mothers' Knowledge Concerning Child Immunization at the Rural District of Alhawija in Kirkuk Governorate

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الخلاصة:

الهدف: التعرف على معارف الأمهات ذات العلاقة بتحصين الطفل وعلاقتها بالصفات الديموغرافية للأمهات والحالة التلقيحية لأطفال الأمهات.
المسئولية: أجريت هذه الدراسة الوصفية في (١٤) قرية تحت مسؤولية (١٤) مركز رعاية صحية أولية في المناطق الريفية في قضاء الحويجة في محافظة كركوك من الثالث الأخير من شهر آذار إلى نهاية شهر حزيران عام ٢٠٠٥، وشملت العينة العمدية م (٢٠٠) للأطفال الذين تتراوح أعمارهم بين (١٢-٢٤) شهر و (٢٠٠) طفل من الذين تتراوح أعمارهم بين (١٢-٢٤) شهر. جمعت معلومات الدراسة بواسطة الباحث الذي قام بمقابلة الأمهات في بيوتهن وملئ الاستمارة الاستبائية المعدة لغرض الدراسة. تم تحقيق ثبات الاستمارة من خلال حساب معامل الارتباط (الفكرون باخ) لمعارف الأمهات ذات العلاقة بتحصين الطفل وتطبيق الاختبار- وإعادة الاختبار (من خلال حساب معامل الارتباط) بيرسن (للحالة التلقيحية لأطفال الأمهات. تم تحقيق محتوى الاستمارة من خلال مجموعة من الخبراء. تم تحليل البيانات من خلال أسلوب الاحصاء الوصفي) التكرار والنسب المئوية (والاحصاء الاستنتاجي عبر م كاي).
النتائج: كشفت النتائج ان معارف الأمهات تجاه تحصين الطفل ضعيفة وتدني الحالة التلقيحية للأطفال الذين تتراوح أعمارهم بين (١٢-٢٤) شهر. وأثبتت نتائج الدراسة وجود علاقة ذات دلالة إحصائية بين معارف الأمهات والمعلومات الديموغرافية (العمر والمتموى الثقافي والحالة الوظيفية للأمهات و ابناء اطفالهن) وصفات مركز الرعاية الصحية الأولية المسؤول على قرية الأم ومصدر معارف الأمهات ذات العلاقة بتحصين الطفل (الطبيب والعامل الصحي والمدرسة ووسائل الاعلام) والحالة التلقيحية لأطفال الأمهات. التوصيات: أوصت الدراسة بضرورة تعاون وزارة الصحة من اجل تحسين معارف الأمهات (تقليل معدل) بتحصين الطفل (والعمل على تحسين الحالة التلقيحية لأطفال الأمهات.

Abstract:

Objective: Identify and describe the scope of knowledge of mothers toward child immunization and its relation to their demographic characteristics and immunization status of their children.

Methodology A descriptive study was conducted in (14) villages under the responsibility of (14) primary health care centers (PHCCs), in the rural districts of Alhawija in Kirkuk governorate, from March 24th to the end of June 2005. Non probability sample of (200) mothers, who had children aged 12-24 months and (200) children aged 12-24 months. The data were collected by the investigator who interviewed mothers in their houses and filled out the constructed questionnaire formats which designed for the purpose of the study. Internal consistency of reliability determined through the computation of alpha-Chron Bach correlation coefficient for the mother's knowledge concerning child immunization. Test-retest of reliability was determined through the computation of spearman's correlation coefficient for child immunization status. The content validity of the constructed questionnaire was determined through the use panel of experts. Data were analyzed through the application of descriptive statistical (frequencies and percentages) and inferential statistical (Chi-Square).

Results: The findings revealed that knowledge of mothers toward child immunization were poor, also the decline of the immunization status of children aged 12-24 months. The findings have approved that there is a significant relationship between mothers' knowledge and demographic variables (age, educational level and occupational status of the children's parents), characteristics of primary health care center (PHCC) responsible for mothers' village, the sources of mothers' knowledge concerning child immunization (physician, health worker, school and mass media) and immunization status of mothers' children.

Recommendations: The study recommended that Ministry of Health would be helpful in improving mothers' knowledge related to child's immunization and improve immunization status of children.

Key words: mothers' knowledge, child immunization.

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Introduction:

Prevention of disease is one of the most important goals in childcare during infancy and childhood⁽¹⁾. Immunization is very important component of child's health care. The health care provider must have the knowledge of immunization schedules and an awareness of potential delays to identify children who have not been fully immunized. Parents should be provided with accurate information regarding immunization⁽²⁾. Health professionals should have enough time to read information to parents, discuss the vaccine to determine caregiver's understanding, address parents' concerns, and correct any misinformation. Because nurses often administer vaccines, they may have the responsibility for adequately informing parents of the nature, prevalence, and risk of the disease, the type of immunization product to be used, the expected benefits and the risk of side effects of the vaccine, and the needs for accurate immunization records⁽⁵⁾.

Routine immunization plays a great role in reducing the incidence and prevalence of infectious diseases since 1950s. In spite of the major importance of vaccine in reduction of communicable diseases, nurse and other health professions must continue to consider immunization a priority in order to protect children from preventable diseases⁽⁴⁾. Immunization is one of the most cost-effective means of preventing morbidity and mortality of children from infectious diseases⁽⁵⁾. Finally, child immunization coverage in the rural districts of Alhawija in Kirkuk governorate is less than desired to prevent the spread of target diseases. The investigator finds that this problem may be solved if mothers' knowledge expanded and they start to understand the importance of immunization to their children's life. This study aims to:

- 1- Assess the scope of mothers' knowledge concerning child's immunization.
- 2- Assess the immunization status of mothers' children aged 12-24 months.
- 4- Find out the relationships between mothers' knowledge and their demographic characteristics and immunization status of their children.

Methodology:

A descriptive study design was conducted on mothers having children aged 12-24 months, starting from the end of March 2005 to the end of June 2005. The study was carried out at 2 main primary health care districts, Alhawija first and second districts, from each district, 7 primary health care centers were selected randomly, from each center one village was selected randomly, but for the sake of the study the investigator choose the villages purposively. Non probability (purposive) sample of 200 mothers have children aged 12-24 months and 200 children aged 12-24 months were selected from (14) villages in the rural districts of Alhawija in Kirkuk governorate. Data were obtained by the investigator who interviewed mothers in their houses. The instrument was designed and constructed by the investigator to measure the variables underlying the present study. The questionnaire consisted of four parts: Part I was concerned with demographic characteristics. Part II was concerned with mothers' knowledge concerning child's immunization and comprised of 54 items. The items were rated according to a 3 point-Likert scale as (know, uncertain and don't know) and levels of the scale were scored as 3 for correct answer, 2 for uncertain and 1 for incorrect answer, to measuring mean of score. Part III was concerned with child immunization status. The questions take (30 -60) minutes to be answered through the time of collecting the data. Internal consistency of reliability determined through the computation of alpha-Cronbach correlation coefficient for the mother's knowledge

concerning child immunization. Test-retest of reliability was determined through the computation of spearman's correlation coefficient for child immunization status. The content validity of the constructed questionnaire was determined through the use 19 panel of experts. Data were analyzed through the application of descriptive statistical approach (frequencies and percentages) and inferential statistical approach (Chi-Square).

Results of the study:

Table (1) Demographic characteristics of child's mother and child's family

Items	F	O/
1-Age of mother		
25 and less	64	32.0
26-40	126	63.0
41and more	10	5.0
Total	200	100
2-Age of child's father		
25 and less	36	18
26-40	125	62.5
4land more	39	19.5
Total	200	100
3-Educational status of mother		
Illiterate	29	14.5
Read and write	32	16.0
Primary school graduate	133	66.5
Intermediate school graduate	3	1.5
Secondary school graduate	3	1.5
Total	200	100
4-Educational status of child's father		
Illiterate	6	3.0
Read and write	20	10.0
primary school graduate	103	51.5
Intermediate school graduate	26	13.0
Secondary school graduate	15	7.5
Institute graduate	19	9.5
College graduate	11	5.5
Total	200	100
5 -Mother's occupational status		
5.1-Employed	10	5.0
5.2-Unemp!oyed (House wife)	190	95
Total	200	100
6 -Father's occupational status		
6.1-Employed	179	89.5
6.2-Unemp!oyed	21	10.5

Mothers' Knowledge Concerning Child Immunization

Table (1) shows that most of mothers (63%) were of age group (26-40) years, while (62.5%) of fathers were of age group (26-40) years, (66.5% and 51.5%) of mothers and fathers respectively graduated from primary school, (95%) of mothers were housewife, while the highest percentage (89.5%) of fathers were employed.

Table (2) Distribution of mothers according to characteristics of (PHCC) responsible for their villages.

Items	F	O/
1-Type of (PHCC)		
Primary (main)	70	35.0
Secondary with physician	39	19.5
Secondary with health staff	91	45.5
Total	200	100
2-Distance of mother's house from (PHCC)		
Less than 1 km	70	35.0
2-4 km	46	23
5-7 km	63	31.5
8 km and more	21	10.5
Total	200	100
3-Mother's access way to (PHCC)		
Walking	70	35.0
Public car	36	18.0
Private car	94	47.0
Total	200	100
4-Location of (PHCC)		
Inside mothers' village	70	35.0
Outside mothers' village	130	65.0
Total	200	100
5-Educational status of health worker in (PHCC)		
Primary school	35	17.5
Intermediate school graduate	21	10.5
Secondary school graduate	41	20.5
Institute graduate	103	51.5
Total	200	100

Table (2) shows that the highest percentage (45.5%) of mothers go to PHCC which classified as secondary with health staff, (35%) of mother, their houses distance from PHCC was less than 1 km, (47%) of mothers used private car to reach the PHCC, (65%) of mothers went to PHCC which located outside of their villages and more than half (51.5%) of mothers went to PHCC which consists of graduated health workers of institute level.

Table (3) Sources of mothers' knowledge concerning child immunization

Source of mothers' knowledge	Mothers				Total
	Received knowledge		Don't received knowledge		
	F	%	F	%	
Physician	66	33.0	144	67.0	200
Health worker	90	45.0	110	55.0	200
Educational lecture or home visits	3	1.5	197	98.5	200
School	23	11.5	177	88.5	200
Mass media	162	81.0	38	19.0	200
Members of family	59	29.5	141	70.5	200
Relatives and neighbors	83	41.5	117	58.5	200

This table shows that (81% and 45%) of mothers received their knowledge concerning child's immunization from mass media and health worker respectively

Table (4) level of Mother's knowledge according to the main items of questionnaire of mothers' knowledge concerning child immunization which recommended for the first year of the 5111111: life

110	Items	Mother's knowledge						Total
		I know		uncertain		!don't know		
		F	%	F	%	F	%	
1	General concepts about child immunization. (5 items)	790	79	9	0.90	201	20.1	1000
2	The child should be immunized in his first year of age against the following diseases :(target diseases). (7 items)	597	42.64	10	0.71	793	56.64	1400
3	Administration method, number of doses and child's age for each vaccine (22 items).	363	8.25	37	0.84	4000	90.91	4400
4	Expected side effects after immunization. (7 items)	915	65.36	1	0.07	484	34.57	1400
5	The conditions which are not considered as true to contraindications to immunizations. (8 items)	357	22.31	61	3.81	1182	73.88	1600
6	The conditions which are considered as true to contraindications to immunizations. (5 items)	167	16.7	49	4.90	784	78.4	1000
	Total	3189	29.53	167	1.55	7444	68.93	10800

This table shows that (79%) of mothers know general concepts about child immunization while (90.91%) of them do not know administration method, number of doses and child's age for each vaccine

Mothers' Knowledge Concerning Child Immunization

Table (5) Child's immunization status for each vaccine, including all vaccines which has been received by the child during his life

Vaccines	Immunization status documented by card		Immunization status documented by card plus mothers' recall		Non immunized		Total
	F	%	F	%	F	O	
BCG	122	61.0	178	89.0	22	11.0	200
OPVO	125	62.5	199	99.5	1	0.5	200
OPV1	79	39.5	196	98.0	4	2.0	200
OPV2	52	26.0	167	83.5	33	16.5	200
OPV3	38	19.0	115	57.5	85	42.5	200
HB1	121	60.5	171	85.5	29	14.5	200
HB2	73	36.5	102	51.0	98	49.0	200
HB3	35	17.5	50	25.0	150	75.0	200
DPT1	81	40.5	137	68.5	63	31.5	200
DPT2	52	26.0	84	42.0	116	58.0	200
DPT3	37	18.5	53	26.5	147	73.5	200
Measles	32	16.0	58	29.0	142	71.0	200

This table shows the immunization status of the children aged 12-24 months which depended on child's immunization status documented by card plus mothers' recall were BCG (89%), OPV3 (57.5%), O113 (26.5%), HB3 (25%) and Measles(29%).

Table (6) The immunization status of the children aged 12-24 months according to their immunization card and their immunization card plus their mothers' recall.

Immunizations of mother's child	F	%
Incomplete because barriers	119	59.5
Incomplete without barriers	46	23.0
Complete immunization	34	17.0
Never immunized because barriers	1	0.5
Total	200	100.0

This table shows that only (17%) of children completed their immunization.

Table (7) Association between mothers' knowledge and demographic variables (age, educational level and occupational status of mothers and with their children's fathers

Age of mother	.Mothers knowledge						Total
	I know		uncertain		I don't know		
	F	O	F	O	F	O	
25 and less	949	27.46	48	2.43	2459	71.15	3456
26-40	2057	30.23	106	1.55	4641	68.20	6804
41andmore	183	33.88	13	2.40	344	63.70	540
Total	3189	29.53	167	1.55	7444	68.93	10800
χ^2 obs. = 17.898 df=8 χ^2 crit. =9.488 P<0.05							

Table (7) continued

Age of children's fathers	Mothers knowledge						Total
	I know		uncertain		I don't know		
	F	./o	F	O	F	./o	
25 and less	521	26.80	27	1.39	1396	71.81	1944
26-40	2038	30.19	98	1.45	4614	68.35	6750
41 and more	630	29.91	42	1.99	1434	68.09	2106
Total	3189	29.53	167	1.55	7444	68.93	10800
x2obs.: 11.059 df=8 X2 crit. =9.488 p ≤0.05							
Mothers' educational level	Mothers knowledge						Total
	I know		Uncertain		I don't know		
	F	O	F	O	F	%	
Illiterate	409	26.11	17	1.08	1140	72.79	1566
Read and write	465	26.90	24	1.38	1239	71.70	1728
Primary school	2159	30.06	112	1.55	4911	68.37	7182
Intermediate school graduate	75	46.29	7	4.32	80	49.38	162
Secondary school graduate	81	50.0	7	4.32	74	45.67	162
Total	3189	29.53	167	1.55	7444	68.93	10800
X2 obs. = 95.177 X2 crit. = 15.507 p ≤0.05							
Educational level of children's fathers	Mothers knowledge						Total
	I know		uncertain		I don't know		
	F	./o	F	./o	F	./o	
Illiterate	81	25.0	7	2.16	236	72.53	324
Read and write	317	29.35	21	1.94	742	68.70	1080
Primary school	1603	28.82	63	1.13	3896	70.04	5562
Intermediate school graduate	432	30.76	32	2.27	940	66.95	1404
Secondary school graduate	244	30.12	10	1.23	556	68.64	810
Institute graduate	338	32.94	22	2.14	666	64.91	1026
College graduate	174	29.29	12	2.02	408	68.68	594
Total	3189	29.53	167	1.55	7444	68.93	10800
X2 obs. =30.867 df= 12 X2 crit. = 21.026 p ≤0.05							
Occupational status of mothers	Mothers know ledge						Total
	I know		uncertain		I don't know		
	F	o/o	F	%	F	./o	
Employed	179	33.14	14	2.59	347	62.96	540
Unemployed	3010	29.33	153	1.49	7097	69.17	10260
Total	3189	29.53	167	1.55	7444	68.93	10800
X2 obs. =8.343 X2 crit. =5.991 p ≤0.05							
Occupational status of children's fathers	Mothers knowledge						Total
	I know		uncertain		I don't know		
	F	./o	F	./o	F	O/	
Employed	2846	29.44	137	1.41	6683	69.13	9666
Unemployed	343	30.24	30	2.64	761	67.10	1134
Total	3189	29.53	167	1.55	7444	68.93	10800
X2 obs. =10.818 X2 crit. =5.991 p ≤ 0.05							

Mothers' Knowledge Concerning Child Immunization

Table 7 shows that there is a significant association between mothers' knowledge and demographic variables of (mothers and their children's fathers).

Table (8) Association between mothers' knowledge and characteristics of primary health care center (PHCC) responsible for mothers' villages

Mothers' access way	Mothers knowledge						Total
	I know		uncertain		Idon't know		
	F	%	F	O	F	%	
Walking	1175	31.08	67	1.77	2538	67.14	3780
Public car	512	26.33	22	1.13	1410	72.53	1944
Private car	1502	29.59	78	1.53	3496	68.87	5076
Total	3189	29.53	167	1.55	7444	68.93	10800
X ² obs. =18.823 df=4 X ² crit. =9.488 p ≤0.05							
(PHCC) location	I know		uncertain		Idon't know		Total
	F	O	F	%	F	%	
Inside mothers' village	1175	31.08	67	1.77	2538	67.14	3780
Out side mothers' village	2014	28.68	100	1.42	4906	69.88	7020
Total	3189	29.53	167	1.55	7444	68.93	10800
X ² obs. =9.342 df=2 X ² crit. =5.991 p<0.05							
Distance of mothers' houses from (PHCC)	I know		uncertain		Idon't know		Total
	F	00	F	%	F	%	
Less than 1 km	1175	31.08	67	1.77	2538	67.14	3780
2-4 km	718	28.90	28	1.12	1738	69.96	2454
5-7 km	979	25.77	48	1.41	2375	69.81	3402
9 km and more	317	27.95	24	2.11	793	69.92	1134
Total	3189	29.53	167	1.55	7444	68.93	10800
X ² obs. =14.576 X ² crit. = 12.592 p ≤0.05							
Type of (PHCC)	I know		uncertain		Idon't know		Total
	F	%	F	%	F	00	
Primary' (main)	1142	30.21	61	1.61	2577	68.17	3780
Secondary with physician	562	26.68	29	1.37	1515	71.93	2106
Secondary with health staff	1485	30.21	77	1.56	3352	68.21	4914
Total	3189	29.53	167	1.55	7444	68.93	10800
X ² obs. = 11.113 df=4 X ² crit. = 9.488 p ≤0.05							
Educational level of health worker in (PHCC)	I know		uncertain		Idon't know		Total
	F	%	F	%	F	0/	
Primary school	546	28.88	20	1.05	1324	70.05	1890
Intermediate school graduate	332	29.27	23	2.02	779	68.69	1134
Secondary school graduate	589	26.60	34	1.53	1591	71.86	2214
Institute graduate	1722	30.96	90	1.61	3750	67.42	5562
Total	3189	29.53	167	1.55	7444	68.93	10800
X ² obs. = 20.304 df=6 X ² crit. = 12.592 p ≤0.05							

This table shows that there is a significant association between mothers' knowledge and characteristics of primary health care center (PHCC) responsible for mothers' villages (distance between the mothers' houses and the (PHCC), mothers'

access way to go to (PHCC), type of (PHCC), location of (PHCC) or educational level of health worker in (PHCC).

Table (9) Association between mothers' knowledge and sources of mothers, knowledge concerning child's immunization

Source of mothers' knowledge	Mothers' response	Mothers knowledge						Total
		I Know		uncertain		I don't know		
		F	%	F	%	F	%	
Physician	Yes	1163	32.63	74	2.07	2327	65.29	3564
	No	2026	29.53	93	1.28	5117	70.71	7236
	Total	3189	29.53	167	1.55	7444	68.93	10800
	X ² obs. = 37.214 x ² crit. = 5.991 p ≤ 0.05							
Health worker	Yes	1514	31.15	82	1.68	3264	67.16	4860
	No	1675	28.19	85	1.43	4180	70.37	5940
	Total	3189	29.53	167	1.55	7444	68.93	10800
	X ² obs. = 13.028 df=2 x ² crit. = 5.991 P ≤ 0.05							
School	Yes	420	34.09	32	2.59	780	63.31	1232
	No	2769	28.94	135	1.41	6664	69.64	9568
	Total	3189	29.53	167	1.55	7444	68.93	10800
	X ² obs. = 26.101 df=2 X ² crit. = 5.991 p ≤ 0.05							
Mass media	Yes	3652	30.42	154	1.76	5911	67.81	8717
	No	537	25.75	13	0.62	1533	73.59	12083
	Total	3189	29.53	167	1.55	7444	68.93	10800
	X ² obs. = 33.717 df=2 X ² crit. = 5.991 p ≤ 0.05							
Their relatives and neighbors.	Yes	1360	30.34	78	1.74	3044	67.91	4482
	No	1829	28.94	59	1.40	4400	69.64	6318
	Total	3189	29.53	167	1.55	7444	68.93	10800
	X ² obs. = 4.725 df=2 X ² crit. = 5.991 p > 0.05							
Educational lecture or home visits	Yes	49	30.24	5	3.70	107	66.04	162
	No	3140	29.51	161	1.51	7337	68.96	10638
	Total	3189	29.53	167	1.55	7444	68.93	10800
	X ² obs. = 5.174 df=2 X ² crit. = 5.991 p > 0.05							
Members of family	Yes	983	30.85	57	1.78	2146	67.35	3186
	No	2206	28.97	110	1.44	5298	69.58	7614
	Total	3189	29.53	167	1.55	7444	68.93	10800
	X ² obs. = 4.982 df=2 X ² crit. = 5.991 p > 0.05							

This table shows that there is a highly significant association between mothers' knowledge and the source of their knowledge which are physician, health worker, school and mass media, while no significant association between mothers' knowledge and the sources of their knowledge which are their relatives and neighbors, an educational lecture or home visits and members of their family.

Table (10) part (A) Association between mothers' knowledge and immunization status of their children aged 12-24 months.

Immunization status of mothers' children	Mothers knowledge						Total
	I know		uncertain		I don't know		
	F	O	F	%	F	O	
Complete immunization	605	32.95	30	1.63	1201	65.41	1836
Incomplete immunization and never immunized	2584	28.82	137	1.52	6243	69.64	8964
Total	3189	29.53	167	1.55	7444	68.93	10800

χ^2 obs.= 12.466 df=2 $\chi^2_{crit.} = 5.991$ $p \leq 0.05$

This table shows that there is a high significant association between mothers' knowledge and immunization status of their children.

Table (10) part (13) The mothers' knowledge according to immunization status of their children aged 12-24 months.

Immunization status of mothers' child	Mothers knowledge						Total
	I know		uncertain		I don't know		
	F	%	F	%	F	%	
Complete immunization	605	32.95	30	1.63	1201	65.41	1836
Incomplete immunization due to barriers	1785	27.77	103	1.60	4538	70.61	6426
Incomplete immunization without barriers	792	31.88	34	1.36	1658	66.74	2484
Never immunized due to barriers	7	12.96	■	■	47	87.03	54
Total	3189	29.53	167	1.55	7444	68.93	10800

This table shows that the higher percentage of correct answers were mothers who have completed immunization of their children represented (32.95%) while the mothers who are never immunized because barriers of their children represented (12.96%) of correct answer.

Discussion

Table (1) indicated that the children's mothers and fathers were graduated from primary school, which reflected that they got little information from school because the text-books of primary school don't mention the matter of child immunization except one page in the first part of science book for the third class and two pages in the first part of science book for the sixth class.

The majority (95%) of the mothers' were housewife, while (37%) of fathers were farmers, which reflected that they have enough time to go to (PHCC). working parents may find it difficult if not impossible, to reach an immunization clinic with their child during working hours (6).the characteristics of parents who are least motivated to obtain timely vaccinations for their children include low educational level of either parent, large family size, young parental age. These parents should be targeted and convinced that vaccinations deserve priority.

The results of table (2) reflected that if the PHCC located outside the mothers' villages, mothers would face some difficulties to get to PHCC, specially, mothers who do not have private cars, but if the mothers have private cars, there will not be a problem.

The availability of community health care facilities indicates the extent of health services, including prenatal and postnatal care, immunization, and growth monitoring. Hospital and clinic availability is mainly important for personal disease control. If resources for disease prevention, such as prenatal care, immunization, and growth monitoring are available in the community, the child is more likely to be healthy. If resources for disease diagnosis and treatment, such as hospitals, health clinics, and health workers are available, the child is more likely to survive^(s).

The results table (3) indicates that the best source of mothers' knowledge concerning child immunization is the mass media, as for results PHCC reveal that they do not have planning related with educational lectures as well as house visits which were 15 years ago. Other researchers explained that the primary source of information about timing and potential side effects of immunization for parents who interviewed in clinic sites in urban population of US were the clinics and clinic nurses, they also mentioned that the media, specific radio channels and magazine articles were identified as source of information related to child immunization^(e).

Table 4, shows that the mothers' knowledge in general was low concerning child-immunization, the total correct answers represent (29,5%).

It has been explained that the parents who interviewed in clinic sites in urban population of US exhibited no understanding of the nature of the diseases immunizations are given against. They knew that immunizations are given to prevent diseases and could name most of the acronyms for vaccines, such as DPT. However, they less often knew what was included in combination vaccines or which diseases were prevented.

Table 7, shows that there is a significant relationship between the mothers' knowledge and demographic data (age, educational level and occupational status of mothers and with their children's fathers with ($p \leq 0.05$), this shows that they younger parents have little knowledge about child immunization than others, parents were all illiterate have little knowledge about child immunization than others and employed mothers have more knowledge about child immunization than others.

Table 8, shows that there is a significant relationship between mothers' knowledge and their access to go to (PHCC) responsible for mothers' village, distance of mothers' houses from (PHCC), location of (PHCC), type of (PHCC) or educational level of health worker in (PHCC) with ($P \leq 0.05$). This proved that mothers who are able to reach (PHCC) by walking, distance of mothers' houses from (PHCC) is less than 1 km, location of (PHCC) inside their villages or health worker of (PHCC) who graduated from an institute, although these mothers have limited knowledge about child immunization but they are still better than others. Table 6 shows that (17%) of children completed immunization. If this immunization status of children in this (PHCCs) is so, what can one expect for other health services?

Table 9, shows that there is a high significant relationship between mothers' knowledge and sources of mothers' information concerning child immunization (physician, health worker, school or mass media). while is no significant relationship between mothers' knowledge and sources of mothers' information concerning child immunization from the members of mothers' families, their relatives and neighbors, educational lectures or home visits with ($P \leq 0.05$).

It has been explained that the primary care physicians are the most common interface for parents with the immunization delivery system and are likely to have the greatest opportunity for exposure and experience with parental vaccine safety

concerns. They recommended that the physicians must work to be consistently well informed of both the benefits of immunization as well as the issues of parental concern regarding vaccine safety⁽¹⁰⁾. Other researchers mentioned that parents are rarely refused vaccines, if they discussed about vaccines with a trusted provider⁽¹¹⁾. The public, especially parents and teachers should be fully informed about the great value and importance of immunization and about the significantly lower rate of adverse events when compared to the diseases prevention⁽¹²⁾.

The common type of health education in Maternal-Child Health (MCH) clinics is a discussion or demonstration with mothers, the health worker should provide health education which still is very important because the health is a concern of every one, and every member of community should have something to pass on to his neighbor, friend, schoolmate, teacher, pupil, pastor or flock about health. Almost every one knows enough about health to be able to teach some thing to others⁽¹³⁾.

Table 5, shows the immunization status of children which recommended for the first year of the child life for each vaccine from all vaccines which they have received during their life through routine immunization and mass immunization campaigns. The child's immunization status depends on child's immunization status which documented by the card and immunization status which documented by the card plus mothers' recall respectively; BCG (61%) (89%), OPV3 (19%) (57.5%), HB3 (17.5%) (25%), O113 (18.5%) (26.5%) and Measles (16%) (29%). the routine immunization coverage of Iraq in 2002 were BCG (85%). OPV3 (82%). HB3 (64%). O113 (74%) and Measles (80%)⁽¹⁴⁾. Table 6, shows that only (17%) of children completed their immunization. Researchers conducted studies and surveys to observe a declining trend of routine immunization coverage and fully immunized children in India and to assess the immunization status among children in the age group of 12-23. They found that (72.23%) of children were fully immunized, (22.99%) were partially immunized and (4.64%) were unimmunized⁽¹⁵⁾.

Table 10-parts (A and B) shows that there is a high significant relationship between mothers' knowledge and immunization status of their children with ($P \leq 0.05$) this indicated that the highest percentage of correct answers were mothers who complete immunization their children presented (32.95%) while the mothers who never immunized their children because barriers represented (12.96%) of correct answer.

Researchers was studied three groups of mothers, first represents those who ended immunization schedule, second those who didn't complete immunization schedule, and the third those who had no immunizations. The first group believed that the risk of vaccines was lower than the risk from disease and that the likelihood of contracting many of these diseases was low. The second group perceived vaccines to be less effective in preventing disease and were often confused about which diseases the vaccines would protect against. The third group was more concerned about unknown, long-term side effects of vaccines than the diseases⁽¹⁶⁾.

Recommendations: The Ministry of Health would:

1. Improve the mothers' knowledge related to child's immunization, through health providers who work in the primary health care centers; provide mothers with educational pamphlets about child immunization and make coordination with non governmental organizations (NGOs), mass media and Ministry of Education for the same purpose.
2. Improve immunization status of children by opening new immunization places for each village, so they will be opened one day monthly at least.
3. Coordinate with Ministry of Education to pay attention to child immunization subject in the primary school curriculums.
4. Motivate the health workers in the field of immunization such as an additional financial support according to their responsibilities.
5. Employ immunization coordinator in each (PHCS) to be responsible for immunization of its (PHCCs). So, the job of the immunization coordinator should be the responsibilities of immunization only.

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