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## **Effectiveness of an instructional program on mothers knowledge toward child vaccines at primary health care centers in Al-Najaf City**

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**Abstract**---Objective(s): The objective of this article is to identify the effectiveness of an instructional program toward mothers' knowledge of child vaccines as well as find the relationship between mothers' knowledge of child vaccines and their demographic data. Methodology: A quasi-experimental study is conducted for the period of October 4th, 2021 to April 19th, 2022. A nonprobability "purposive" sample of (60) mothers (30) for the control group and (30) for the study group was used in the study. Six basic health care centers in the Iraqi city of Al-Najaf were chosen for the sampling. The data is collected using a self-report questionnaire with two parts: the first part deals with the mothers' demographic information and previous history, and the second portion deals with the mothers' knowledge of child vaccines. Results: According to the findings, there is a significantly difference in mothers' knowledge about child immunizations between the study group's post-test knowledge score Except for the educational and occupational status, where there is a statistically significant association. In the control group, there is no significant relationship between mothers' knowledge and demographic characteristics such as age, education, or socio-economic status. Recommendations: The study concluded that public awareness campaigns in primary health care settings are necessary. aims to educate mothers on the importance of vaccines and immunization for their children by offering instructional program booklets for moms in collaboration with researchers and the Ministry of Higher Education.

**Keywords**---instructional program, mothers' knowledge, child vaccines.

## **Introduction**

Disease prevention is one of the most valuable services that any government can provide to its citizens. Vaccines are an important part of a health system, an effective tool for controlling diseases in many countries around the world, and the most cost-effective mechanism for preventing morbidity and mortality that enables people to perform better protect themselves against bacteria and viruses that are particular (Almutairi et al., 2021). Vaccines are one of the health system's most cost-effective treatments. It's not expensive, but the benefits it provides to the crucial role it plays in health and well-being are significant. There are an estimated, every year, 10.6 children below the age of five are born., and vaccine-preventable diseases account for around 1.4 million of these fatalities (Masadeh et al., 2014).

Mothers' knowledge has been suggested as a key component in deciding childcare and influencing vaccination decisions for their children. Because women are generally the major decision makers for their children's healthcare, including vaccination, our main study topic is on their immunization knowledge (Kyprianidou et al., 2021). In order to achieve full immunization before a child's first birthday, mothers' knowledge plays a significant role, as do prior parent variables, knowledge attitude, and practice. People's awareness of specific issues, their sentiments, and their habits may be learned via research (Ramadan et al., 2016)

The importance of the research topic is demonstrated by the fact that research on Iraq's present crisis is scarce compared to that of neighboring nations and wealthy nations. One of the issues we encountered when taking part in vaccination campaigns at primary health care centers was the lack of knowledge among mothers about the recommended childhood vaccination schedule. Several children had not received the vaccine, while others had just received part of it. It is thus expected that the study would provide mothers who visit the vaccination unit at primary healthcare centers with proper information about their children's vaccines, thus reducing the danger of infectious diseases caused by neglecting immunizations (Researcher).

## **Method**

**Study design:** The study is a quasi-experimental in design, with two groups: pre-test and post-test.

**Setting:** The current study was carried out at primary health care centers in Al-Najaf City.

**Study sample:** The study has applied a non-probability (purposive) sampling method. The sample size is (60) mothers (30) mothers for the study group, there were 30 mothers, and for the control group, there were 30 mothers.

**Ethical Considerations:**

Scientific Research Ethical Committee at the University of Kufa, College of Medicine has approved the study to be conducted.

**Steps of the study:**

1. Assessing the education needs related to knowledge about child vaccines. Before implementing the instructional program, a preliminary need assessment for mothers' knowledge about child vaccines.
2. Program construction: An instructional program was constructed for the purpose of the study. It focuses on various aspects of child vaccines.

### **Study Instrument**

A self-report questionnaire is constructed for the purpose of the study. It includes two parts. These parts are displayed as follows:

#### Part I: Demographic Characteristics

This part consists of (7) items which include: (age, residency, job status, level of educational, monthly income, type of family, and No. of children under 5 years of age).

Previous information: This part consist of six items which included she has a vaccination card or not, as well as the child's situation from his previous vaccinations and the source of the mother's information on immunization, if any.

#### Part II: Mothers' knowledge about child vaccines:

This part is comprised of (53) items that measure mothers' knowledge about child vaccines distributed into eight domains of knowledge.

Rating and scoring of the study instrument: The knowledge questionnaire using a three-point Likert scale (Yes, I don't know, No), and all the knowledge scale range was calculated and divided by 3 (required knowledge categorization: good, fair, and poor) and thus the cutoff point was (0.66).

Data collection: The data is collected through the use of a developed questionnaire (Arabic version) and the application of the self-administrative method the data collecting done (27rd December 2021 to 20th February 2022).

Pilot study: A pilot study was carried out from December 9th to December 24th, 2021. Two weeks later, the retest was directed by using the same questionnaire. The pilot sample (selected primary health care centers (PHHC) and mothers) were left out of the study sample, and the study was carried out on a sample of eight mothers.

Validity of the study: A panel of specialists with more than 10 years of expertise in their field determined the instrument's content validity, The aim of the expert consultation procedure was to look into the existing research tool's effectiveness in achieving the goals set, as well as the clarity of its components and questions. They were as follows: 6 expert from Nursing Faculty / Kufa University, 2 expert from Nursing Faculty / Baghdad University, 2 expert from Nursing Faculty / Babylon University, 2 expert from medicine Faculty / Kufa University, and 1 expert from Nursing Faculty / University of Karbala

Reliability: The reliability of the study tool was examined by Pearson correlation coefficient (r) for 8 mothers, using the test-retest technique to determine questionnaire stability and consistency over time. The obtained value for the knowledge instrument score was (r = 0. 786).

Statistical data analysis: The data of the study is done by using excel 2010 and SPSS package ver. 26th.

## Result

Table (1) Descriptive statistics (frequency and percentage) for demographic data of both study and control groups

Demographic data		Study Group		Control Group		x <sup>2</sup> P value
		Freq. (N=30)	Percent.	Freq. (N=30)	Percent.	
Age / Years	< 20	2	6.7	3	10.0	0.59
	20-24	11	36.7	10	33.3	0.98
	25-29	7	23.3	8	26.7	NS
	30-34	6	20.0	5	16.7	
	≥ 35	4	13.3	4	13.3	
Educational Status	Illiterate	0	0.0	1	3.3	2.64
	Primary school	4	13.3	3	10.0	0.62
	Intermediate	9	30.0	12	40.0	NS
	Secondary School	7	23.3	8	26.7	
Occupational Status	College or Above	10	33.3	6	20.0	
	Employed	9	30.0	6	20.0	0.80
Residence	Unemployed	21	70.0	24	80.0	0.37
	Urban	27	90.0	26	86.7	NS
Monthly Income	Rural	3	10.0	4	13.3	0.16
	Sufficient	13	43.3	8	26.7	NS
Type of family	Barely Sufficient	14	46.7	18	60.0	1.83
	Insufficient	3	10.0	4	13.3	0.39
	Nuclear	13	43.3	16	53.3	NS
No. of Children under 5 years	Extended	17	56.7	14	46.7	0.60
	1	12	40.0	15	50.0	NS
	2	13	43.3	11	36.7	0.61
	3	5	16.7	4	13.3	0.73
						NS

NS: Non-Significant at P>0.05

This study involved a total of 60 mothers (30 for study group and 30 for control group), their demographic data are communicated in table (1). This table shows that the majority of the mothers' subgroups in the (study group) are: those with ages ranging between (20-24) years (36.7%); those that have intermediate school degree (30%); those who employed (70%); those that who live in urban (90%); those with barely sufficient monthly income (46.7%); those who live in extended families (56.7%); those who has two children under 5 years (43.3%). The same table shows that the majority of the mothers' subgroups in the (control group) are: those with ages ranging between (20-24) years (33.3%); those that have intermediate school degree (40%); those who employed (80%); those that who live in urban (87.6%); those with barely sufficient monthly income (60%); those who live in nuclear families (53.3.%), those who has one child under 5 years (50%).

Inferential statistics has shown that in terms of demographic distribution, there was no significant difference between the study and control groups ( $P>0.05$ ).

Table (2) Descriptive statistics (frequency and percentage for the history of mothers about vaccination for both study and control groups

Demographic data		Study Group		Control Group		$\chi^2$ P value
		Freq. (N=30)	Percent.	Freq. (N=30)	Percent.	
Is your child vaccinated against diseases?	Yes	28	93.3	30	100.0	2.07
	No	2	6.7	0	0.0	0.15 NS
Do you have a vaccination card?	Yes	28	93.3	30	100.0	2.07
	No	2	6.7	0	0.0	0.15 NS
Has the child completed his vaccinations?	Yes	21	70.0	23	76.7	2.64
	No	9	30.0	7	23.3	0.62 NS
National Vaccination Schedule helped to know your child's vaccinations Schedule	Yes	26	86.7	28	93.3	0.74
	No	4	13.3	2	6.7	0.38 NS
Do you have information about immunization?	Yes	27	90.0	28	93.3	0.22
	No	3	10.0	2	6.7	0.64 NS
Source of information	None	3	10.0	2	6.7	1.91
	Health Workers	5	16.7	7	23.3	0.59
	Social Media	13	43.3	11	36.7	NS
	Friends	9	30.0	10	33.3	

NS: Non-Significant at  $P>0.05$ ; HS: high significance at  $P<0.01$

Table (2) reveals the descriptive statistics (frequency and percentage) for the previous history of mothers about vaccination. This table shows that the majority of the mothers' subgroups in the (study group) are: those who have child vaccinated against diseases (93.3%); those who have a vaccination card (93.3%); those who their child completed his vaccinations (70%); those who get benefit from the national vaccination schedule to know your child's vaccinations schedule (86.7%); those who have information about immunization (90%); those who used social media as a source of information (43.3%). The same table shows that the majority of the mothers' subgroups in the (control group) are: those who have child vaccinated against diseases (100%); those who have a vaccination card (100%); those who their child completed his vaccinations (76.7%); those who get benefit from the national vaccination schedule to know your child's vaccinations schedule (93.3%); those who have information about immunization (93.3%); those who used social media as a source of information (36.7%). Inferential statistics has shown that in terms of demographic distribution, there was no statistically significant difference ( $P>0.05$ ) between the study and control groups.

Table (3): Descriptive statistics and differences in knowledge assessment between study and control groups at both (pre-test and post-test) measurements

		Study Group			Control Group			x <sup>2</sup> P value
		Low	Moderat e	Good	Low	Moderat e	Good	
Pre-Test	Freq.	2	23	5	1	25	4	0.53
	Percent.	6.67	76.66	16.67	3.33	83.33	13.33	(0.77) NS
Post-Test	Freq.	0	4	26	1	26	3	36.48
	Percent.	0.00	13.33	86.67	3.33	86.67	10.00	(0.000) HS
	x <sup>2</sup>		31.94			1.63		
	P value		(0.000) HS			(0.92) NS		

HS: high significance at  $P < 0.01$ ; NS: Non-Significant at  $P > 0.05$

Table (3) shows the descriptive statistics and differences in knowledge assessment between study and control groups at both (pre-test and post-test) measurements. Regarding study group, there was an increase in the percentage of mothers with good knowledge from (16.67%) to (86.67%); while in the control group, the in the percentage of mothers with good knowledge has decreased from (13.33%) to (10%). Chi square contingency test showed a significant difference ( $P < 0.050$ ) in the assessment of mothers' knowledge between study and control groups and between (pre-test and post-test) dimension for study group; but there was no significant difference ( $P > 0.05$ ) between (pre-test and post-test) measurements for control group.

Table (4) ANOVA table for the association between the overall assessment of mothers' knowledge regarding Child vaccines and their demographic data

Demographic data	Mean	SD	F Test	P value
Age / Years			0.48	0.75
	< 20	2.63		
	20-24	2.68		
	25-29	2.63		
	30-34	2.75		
	≥ 35	2.64		
Educational Status			6.35	0.00
	Primary school	2.50		
	Intermediate	2.60		
	Secondary School	2.70		
	College or Above	2.80		
Occupational Status			5.05	0.03
	Employed	2.77		
	Unemployed	2.63		
Residence			0.12	0.73
	Rural	2.68		
	Urban	2.64		
Monthly Income			0.97	0.39
	Sufficient	2.71		
	Barely Sufficient	2.65		
	Insufficient	2.58		

Type of family	Nuclear	2.66	0.18	0.08	0.78
	Extended	2.68	0.15		
No. of Children under 5 years	1	2.64	0.13	0.38	0.68
	2	2.69	0.18		
	3	2.71	0.19		
Source of information	None	2.51	0.15	1.63	0.12
	Health Workers	2.61	0.18		
	Social Media	2.75	0.11		
	TV	2.64	0.17		

Table (4) presents ANOVA table for the association between the overall assessment of mothers' knowledge regarding Child vaccines and their demographic data, it reveals that mothers with college educational level have more knowledge; employed mothers have more knowledge than unemployed.

### Discussion

Regarding the effectiveness of the instructional program, the finding of the present study shows that the difference between the post-test knowledge score and the pre-test knowledge score is substantial. mothers' knowledge about child vaccines for the study group (Awadh et al., 2014) The instructional program on child vaccines was found to be effective. This study is supported by a study conducted to evaluate and compare the degree of knowledge about child vaccines among mothers before and after administration of health education program revealed a significant change between the degree of knowledge after the test and the degree of knowledge before the test. Since the value of the account is less than the scheduled value, the health education program on child vaccines was found to be successful. Similarly, a study examines the effect of program intervention on the knowledge of mothers with regard to child vaccines and finds that after implementing a health education program, mothers' knowledge of child vaccines improved significantly and this proves the effectiveness of the health education program in increasing mothers' knowledge about child vaccines (Hu et al., 2017). Regarding the associations of mothers' knowledge with their demographic characteristics at the pretest, the finding of the current study reveals that there is no significant relationship between mothers' knowledge with their demographic characteristics. This finding indicates that mothers knowledge is independent of all of these characteristics. A study supports this finding that shows there is no statistically significant relationship among the knowledge scores of child vaccines (Verulava et al., 2019).

### Conclusion

1. Mothers' knowledge regarding child vaccines in pre-test, the results were moderate for the two groups, besides there was no significant difference among the two groups' knowledge at the pre-test level.
2. Knowledge of the mothers about child vaccines in the post-test, for the study group, was good knowledge whereas the control group remained at the same knowledge levels, with a significant difference in knowledge among the two groups.

3. The program was effective in improving mothers' knowledge toward child vaccines, and there was a significantly difference in knowledge between mothers who attended the program sessions (study group) comparing to those who did not attended program sessions (control group).

### Recommendations

1. Working on conducting awareness campaigns in primary health care centers. In cooperation with researchers and the Ministry of Higher Education, aims to educate mothers about the importance of vaccines and immunization for their children during Offer instructional program booklets for mothers.
2. Encouraging academics, researchers, and public and community health personnel (nurses and physicians) to conduct public education regarding the importance of vaccines by using mass media such as TV or social media applications, which are the most effective ways to interact and communicate healthy knowledge to the mothers

### References

- Almutairi, W. M., Alsharif, F., Khamis, F., Sallam, L. A., Sharif, L., Alsufyani, A., Alshulah, F. N., & Alqasimi, R. (2021). Assessment of Mothers' Knowledge, Attitudes, and Practices Regarding Childhood Vaccination during the First Five Years of Life in Saudi Arabia. *Nursing Reports*, *11*(3), 506–516. <https://doi.org/10.3390/nursrep11030047>
- Awadh, A. I., Hassali, M. A., Al-lala, O. Q., Bux, S. H., Elkalmi, R. M., & Hadi, H. (2014). Does an educational intervention improve parents' knowledge about immunization? Experience from Malaysia. *BMC Pediatrics*, *14*(1), 1–7. <https://doi.org/10.1186/1471-2431-14-254>
- Hu, Y., Chen, Y., Wang, Y., Song, Q., & Li, Q. (2017). Prenatal vaccination education intervention improves both the mothers' knowledge and children's vaccination coverage: Evidence from randomized controlled trial from eastern China. *Human Vaccines and Immunotherapeutics*, *13*(6), 1477–1484. <https://doi.org/10.1080/21645515.2017.1285476>
- Kyprianidou, M., Tzira, E., Galanis, P., & Giannakou, K. (2021). Knowledge of mothers regarding children's vaccinations in Cyprus: A cross-sectional study. *PLoS ONE*, *16*(9 September), 1–18. <https://doi.org/10.1371/journal.pone.0257590>
- Masadeh, M. M., Alzoubi, K. H., Al-Azzam, S. I., Al-Agedi, H. S., Abu Rashid, B. E., & Mukattash, T. L. (2014). Public awareness regarding children vaccination in Jordan. *Human Vaccines and Immunotherapeutics*, *10*(6), 1762–1766. <https://doi.org/10.4161/hv.28608>
- Ramadan, H. A., Soliman, S. M., & Abd El-kader, R. G. (2016). Knowledge, Attitude and Practice of Mothers toward Children's Obligatory Vaccination. *IOSR Journal of Nursing and Health Science*, *05*(04), 22–28. <https://doi.org/10.9790/1959-0504022228>
- Verulava, T., Jaiani, M., Lordkipanidze, A., Jorbenadze, R., & Dangadze, B. (2019). Mothers' Knowledge and Attitudes Towards Child Immunization in Georgia. *The Open Public Health Journal*, *12*(1), 232–237. <https://doi.org/10.2174/1874944501912010232>