

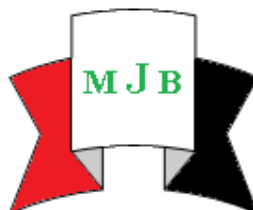
Effectiveness of Health Education on The Knowledge of The Mothers Toward Pertussis Disease and Vaccination in Al-Hashimiya District - Babylon Governorate

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Abstract:

The aim of this study is to study effectiveness of health education on the knowledge of the mothers toward pertussis disease and vaccination.

A descriptive, cross-sectional study, carried out during the period from 9th January till 10th of March 2014. Data were collected by the researcher, by using a special questionnaire format was constructed for this purpose, The sample of the study was 150 mothers visit Al-Hashimiya health centers.

The results of the study shows that the majority of the participants 63 (42%) were between age groups (20 – 29) years, 148 (98.7%) were reported as married, related to the education 78 (52%) were read-write and primary, the majority of the sample are "Housewife", and they accounted 139 (92.7%). Additionally, the results have indicated that there are highly significant differences for all items of mothers knowledge concerning pertussis disease at pre-post test period. Regarding to source of information the results indicated that the mothers answered with health employees at pre-test were 125 (83.3%), while the mothers answered with health employees at post-test period were 142 (94.7%).

Key words: Health education, Mothers knowledge, Pertussis disease, Vaccination.

فاعلية التثقيف الصحي على معرفة الامهات بمرض السعال الديكي واللقاحات في
قضاء الهاشمية / محافظة بابل

الخلاصة:

الهدف من هذه الدراسة هو لدراسة فاعلية التثقيف الصحي على معارف الامهات نحو مرض السعال الديكي واللقاحات.

هذه الدراسة كانت دراسة وصفية ، مقطعية ، نفذت خلال الفترة من ٩ كانون الثاني ٢٠١٤ ولغاية ١٠ مارس ٢٠١٤. تم جمع البيانات من قبل الباحث باستخدام استبيان خاص صمم لهذا الغرض. عينة الدراسة كانت (١٥٠) من الامهات المشاركات.

أظهرت نتائج الدراسة الحالية، بأن اغلبية الامهات المشاركات ٦٣ (٤٢٪)، ضمن الفئة العمرية (٢٠ – ٢٩) سنة، ١٤٨ (٩٨.٧٪) متزوجات، ٧٨ (٥٢٪) منهن ضمن مستوى تقرأ وتكتب او الابتدائية، والغالبية العظمى من العينة هن "ربات بيوت"، حيث بلغن ١٣٩ (٩٢.٧٪) من إجمالي العينة. بالإضافة إلى ذلك، فقد أشارت النتائج الى وجود فروق معنوية كبيرة تم تسجيلها ($P < 0.01$) في جميع فقرات "معارف الامهات حول مرض السعال الديكي في فترة ما قبل الاختبار وما بعد الاختبار". وفيما يتعلق بمصدر المعلومات، فإن غالبية اجابات الامهات كانت ضمن خيار "موظفي الصحة" حيث سجلت النتائج في فترة ما قبل الاختبار ١٢٥ (٨٣.٣٪)، بينما في فترة ما بعد الاختبار فإن غالبية اجابات الامهات ايضا كانت ضمن خيار "موظفي الصحة" حيث سجلت ١٤٢ (٩٤.٧٪).

Introduction

Pertussis is a bacterial disease affecting the respiratory tract. The World Health Organization(WHO) estimates a global total of 48.5 million

cases of pertussis per year, with 295,000 – 390,000 deaths[1],[2],[3].WHO defined Health Education as "Consciously constructed opportunities for learning involving some form of communication designed to improve health literacy,

including improving knowledge, and developing life skills which are conducive to individual and community health" [4]. Knowledge of parents and patients are also known to contribute to success or failure of immunization Program [5,6]. Negative parental perceptions of vaccination have been identified as an important barrier to pediatric vaccination [7]. Therefore, it is important to understand which variables influence parental decisions to vaccinate their children or not, healthcare providers have a positive influence on parental decisions to vaccinate their children, including parents who believe that vaccinations are unsafe [8]. Immunization of infants and young children against serious infectious diseases is among the most successful and cost-effective interventions in preventative health care. The success of these programs relies on sufficiently high coverage to maintain herd immunity. Further, in relation to vaccine preventable serious infectious diseases, some parents minimize the seriousness of the effects of these diseases compared to the risk of adverse effects from immunization [9,10].

Materials and Methods

Study Design: A descriptive, cross-sectional study, carried out during the period from 9th January to 10th of March 2014, at Al-Hashimiya district/Babylon governorate.

Sample of the Study: The sample of study consisted of (150) mothers attending to the primary health care centers (PHCCs) in Al-Hashimiya district.

Data Collection: Before collecting sample of the study, the researcher ask the mothers who attending to the (PHCCs) if they agree to participate in health education program concerning pertussis disease and vaccinations, after receiving their consents for participation in this study data were collected by direct interview with the mothers which took about (10-15) minutes, in order to answer all the items of the questionnaire at pre-test period and post-test period (10-15 minutes for each period), after collecting data from the mothers the

researcher started the began health education program by giving lectures about the disease and vaccination, each lecture lasted for one hour, the lectures included many educational method such as educational pamphlets, and discussion about the disease and vaccination. The data collection was all days of the week except friday, saturday and holidays if presents.

Statistical Analysis

The following statistical data analysis approaches were used in order to analyze and assess the results of the study under application of the statistical package (SPSS) version (10.0). Chi-Square test for testing the independency distribution of the observed frequencies and their none restricted of an expected outcomes. Binomial test for testing the different of distribution of the observed frequencies of two categories nominal/or ordinal scale and their none restricted of an expected outcomes at 50%.

Results

The results has indicated that there are a highly significant differences at $P<0.01$ among different educational levels at all items knowledge of the mothers. Relative to item of age groups, the majority of the sample were between the age groups (20 – 29) yrs. and they are accounted 63(42%), the vast majority 148(98.7%) of the studied sample were married, the greater number of them illustrated low levels of education, such as read-write and primary schools, they are accounted 78 (52%), the majority of the sample were "Housewife", and they accounted for 139 (92.7%) of the total sample. Relative to item "Number of Children", results indicated that a highest percentages of the study sample were obtained at the first (1-2) and second (3-4) groups, and they were accounted 50 (33,3 %), 51 (34%) respectively (Table1). Concerning "Mothers knowledge toward Pertussis disease items at Pre-test period". The results has indicated that there are a highly significant differences at $P<0.01$ between different dichotomous categories responding for the studied items. Relative to item of asking about "Have you heard

about Pertussis disease ?", the majority of the sample answered were reported as "Yes", and they are accounted 126 (84%). Regarding to item of asking about "Pertussis is a communicable disease?", the observed frequencies of those mother's answered with "Yes" are 99 (66%), while the leftover with "No, and I don't know" answered were reported 10 (6.7%) and 41 (27.3%) respectively. With respect to item of asking about "Pertussis is a respiratory disease spread by air born droplets?", the observed frequencies of those answered with "Yes" are 98 (65.3%), while the leftover with "No, and I don't know" answered were reported 6(4%) and 46(30.7%) respectively. Regarding to item of asking about "Pertussis affects children more than adolescents and elderly?", observed frequencies of those answered with "Yes" are 95(63.3%), while the leftover with "No, and I don't know" answered were reported 8 (5.3%) and 47(31.3%) respectively. With respect to item of asking about "Pertussis can be treated with antibiotics?", the observed frequencies of those answered with "Yes" are 113 (75.3%), while the leftover with "No, and I don't know" answered were reported 2 (1.3%) and 35(23.3%) respectively. Relative to item of asking about "Do you know about (DPT) vaccine (Diphtheria-Pertussis-Tetanus)?", observed frequencies of those answered with "Yes" are 106 (70.7%), while the leftover with "No" answered were reported 44 (29.3%). Regarding to item of asking about "Pertussis can be prevented by vaccination(DPT) vaccine?", the observed frequencies of those answered with "Yes" are 92(61.3%), while the leftover with "No, and I don't know" answered were reported 5 (3.3%) and 53 (35.3%) respectively. With respect to item of asking about "Health education play important role to prevent Pertussis disease?", the observed frequencies of those answered with "Yes" are 129 (86%), while the leftover with "No, and I don't know" answered were reported 2 (1.3%) and 19 (12.7%) respectively. Relative to item of asking "Why immunization is important?", the observed

frequencies of those answered with "Prevents diseases" are 102 (68%), while the leftover with "Cures diseases, and I don't know" answered were reported 33 (22%) and 15(10%) respectively. Regarding to subject of asking about "At what age immunization is to be started with (DPT) vaccine?", the observed frequencies of those answered At 2 months of age" are 60 (40%), while the leftover with "At birth, and I don't know" answered were reported 21 (14%) and 69 (46%) respectively. Regarding to subject of asking about "How many doses of (DPT) vaccine are needed for a child to be protected against Pertussis ?", the observed frequencies of those answered with "Five" are 29(19.3%), while the leftover with "Three, and I don't know" answered were reported 35(23.3%) and 86 (57.3%) respectively (Table-2).

Regarding to item of asking about "What are the main source of information about Pertussis and vaccination?" at the pre-test period, the observed frequencies of those mothers answered with "Health Employees" are 125(83.3%), while the leftover with the others responding of "Radio - Television, and Publications - Pamphlets" answered were reported 19(12.7%), 6 (4%) respectively (Table-3).

Concerning "Mother's knowledge toward pertussis disease items at post-test period". The results has indicated that there are a highly significant differences at $P < 0.01$ between the different dichotomous categories responding for the studied items. Relative to item of asking about "Have you heard about Pertussis disease ?", the majority of the sample answered were reported as "Yes", and they are accounted 149(99.3%). Regarding to item of asking about "Pertussis is a communicable disease?", the observed frequencies of those mother's answered with "Yes" are 142 (94.7%), while the leftover with "No, and I don't know" answered were reported 1(0.7%) and 7(4.7%) respectively. With respect to item of asking about "Pertussis is a respiratory disease spread by air born droplets?", the observed frequencies of those answered with "Yes" are 127 (84.7%), while the leftover with "No, and I

don't know" answered were reported 0 (0.0%) and 23 (15.3%) respectively. Relative to item of asking about "Pertussis affects children more than adolescents and elderly?", the observed frequencies of those answered with "Yes" are 130 (86.7%), while the leftover with "No, and I don't know" answered were reported 2(1.3%) and 18 (12%) respectively. Regarding to item of asking about "Pertussis can be treated with antibiotics?", the observed frequencies of those answered with "Yes" are 141 (94%), while the leftover with "No, and I don't know" answered were reported 1 (0.7%) and 8 (5.3%) respectively. Relative to item of asking about "Do you know about (DPT) vaccine (Diphtheria-Pertussis-Tetanus)?", observed frequencies of those answered with "Yes" are 139 (92.7%), while the leftover with "No" answered were reported 11 (7.3%).Regarding to item of asking about "Pertussis can be prevented by vaccination (DPT) vaccine?", the observed frequencies of those answered with "Yes" are 131 (87.3%), while the leftover with "No, and I don't know" answered were reported 1 (0.7%) and 18 (12%) respectively. With respect to item of asking about "Health education play important role to prevent Pertussis disease?", the observed frequencies of those answered with "Yes" are 146 (97.3%), while the leftover with "No, and I don't know" answered were reported 0 (0.0%) and 4 (2.7%)

respectively. Regarding to item of asking "Why immunization is important?", the observed frequencies of those answered with "Prevents diseases" are 122 (81.3%), while the leftover with "Cures diseases, and I don't know" answered were reported 15(10%) and 13 (8.7%) respectively. Regarding to item of asking about "At what age immunization is to be started with (DPT) vaccine?", the observed frequencies of those answered with At 2 months of age" are 93(62%), while the leftover with "At birth, and I don't know" answered were reported 7(4.7%) and 50 (33.3%) respectively. Regarding to item of asking about "How many doses of (DPT) vaccine are needed for a child to be protected against Pertussis ?", the observed frequencies of those answered with "Five" are 73 (48.7%), while the leftover with "Three, and I don't know" answered were reported 15 (10%) and 62 (41.3%) respectively (Table 4).

Regarding to item of asking about "What are the main source of information about Pertussis and vaccination?" at the post-test period, the observed frequencies of those mothers answered with "Health Employees" are 142 (94.7%), while the leftover with the others responding of "Radio-Television, and Publications-Pamphlets" answered were reported 3(2%) and 5 (3.3%) respectively (Table-5).

Table 1: Distribution of mothers according to socio-demographical characteristics variables with comparison significant

Demographical Characteristics	Groups	No.	%	Cum. %	C.S. (*) P-value
Mothers Age Groups	< 20	15	10	10	$\chi^2 = 72.80$ P=0.000 HS
	20 - 29	63	42	52	
	30 - 39	44	29.3	81.3	
	40 - 49	23	15.3	96.7	
	≥ 50	5	3.3	100	
	Mean ± SD		30.05 ± 8.95		
Marital Status	Married	148	98.7	98.7	Bin. test P=0.000 (HS)
	Widowed	2	1.3	100	
Educational levels	Illiterate	41	27.3	27.3	$\chi^2 = 172.4$ P=0.000 HS
	Read-write & Primary	78	52	79.3	
	Intermediate	13	8.7	88	

Occupation	Secondary Institute	6	4	92	Bin. test P=0.000 (HS)
	College	3	2	94	
	House wife	9	6	100	
	Government employee	139	92.7	92.7	
Number of children	1 - 2	11	7.3	100	$\chi^2 = 61.20$ P=0.000 HS
	3 - 4	50	33.3	33.3	
	5 - 6	51	34	67.3	
	7 - 8	33	22	89.3	
	9 - 10	11	7.3	96.7	
Mean $\pm$ SD		5	3.3	100	
		3.69 $\pm$ 2.13			

(*) HS: Highly Sig. at P<0.01

Bin. : Binomial test; χ^2 : Chi – Square test.

Table 2: Distribution of mother's knowledge concerning pertussis disease Items at pre-test period with comparison significant

Item's Knowledge	Responding	No.	%	Cum. %	C.S. (*) P-value
Do you heard about Pertussis disease?	Yes	126	84	84	Bin. test P=0.000 (HS)
	No	24	16	100	
Pertussis is a communicable disease?	Yes	99	66	66	$\chi^2 = 49.92$ P=0.000 HS
	No	10	6.7	72.7	
	I don't Know	41	27.3	100	
Pertussis is a respiratory disease spread by air born droplets ?	Yes	98	65.3	65.3	$\chi^2 = 63.41$ P=0.000 HS
	No	6	4	69.3	
	I don't Know	46	30.7	100	
Pertussis affects children more than adolescents and elderly ?	Yes	95	63.3	63.3	$\chi^2 = 59.97$ P=0.000 HS
	No	8	5.3	68.7	
	I don't Know	47	31.3	100	
Pertussis can be treated with antibiotics?	Yes	113	75.3	75.3	$\chi^2 = 69.33$ P=0.000 HS
	No	2	1.3	76.7	
	I don't Know	35	23.3	100	
Do you know about (DPT) vaccine (Diphtheria-Pertussis-Tetanus) ?	Yes	106	70.7	70.7	Bin. test P=0.000 (HS)
	No	44	29.3	100	
Pertussis can be prevented by vaccination (DPT) vaccine?	Yes	92	61.3	61.3	$\chi^2 = 75.71$ P=0.000 HS
	No	5	3.3	64.7	
	I don't Know	53	35.3	100	
Health education play un important role to prevent Pertussis disease?	Yes	129	86	86	$\chi^2 = 86.40$ P=0.000 HS
	No	2	1.3	87.3	
	I don't Know	19	12.7	100	
Why immunization is important?	Cures diseases	33	22	22	$\chi^2 = 81.60$ P=0.000 HS
	Prevents diseases	102	68	90	
	I don't know	15	10	100	
At which age should be started with (DPT) vaccine?	At birth	21	14	14	$\chi^2 = 118.3$ P=0.000 HS
	At 2 months of age	60	40	54	
	I don't know	69	46	100	
How many doses of (DPT) vaccine are needed for a	Three	35	23.3	23.3	$\chi^2 = 179.0$ P=0.000
	Five	29	19.3	42.7	

child to be protected against Pertussis ?	I don't know	86	57.3	100	HS
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(*) HS: Highly Sig. at P<0.01; NS: Non Sig. at P>0.05

Bin. : Binomial test; χ^2 : Chi – Square test.

Table 3: Distribution the main sources of information about pertussis Disease and vaccination at pre-test period with comparison significant

Question	Source of information	No.	%	Cum . %	C.S. (*) P-value
What are the main source of information about Pertussis and vaccination?	Radio and Television	19	12.7	12.7	$\chi^2= 480.5$ P=0.000 HS
	Publications and pamphlets	6	4.0	16.7	
	Health employees	125	83.3	100	

(*) HS: Highly Sig. at P<0.01

χ^2 : Chi – Square test.

Table (4): Distribution of mother's knowledge concerning pertussis disease Items at post-test period with comparison significant

Item's Knowledge	Responding	No.	%	Cum. %	C.S. (*) P-value
Did you heard about Pertussis disease ?	Yes	149	99.3	99.3	Bin. test P=0.000 (HS)
	No	1	0.7	100	
Pertussis is a communicable disease?	Yes	142	94.7	94.7	$\chi^2= 254.3$ P=0.000 HS
	No	1	0.7	95.3	
	I don't Know	7	4.7	100	
Pertussis is a respiratory disease spread by air born droplets ?	Yes	127	84.7	84.7	$\chi^2= 72.11$ P=0.000 HS
	No	0	0	84.7	
	I don't Know	23	15.3	100	
Pertussis affects children more than adolescents and elderly ?	Yes	130	86.7	86.7	$\chi^2= 194.6$ P=0.000 HS
	No	2	1.3	88	
	I don't Know	18	12	100	
Pertussis can be treated with antibiotics?	Yes	141	94	94	$\chi^2= 248.9$ P=0.000 HS
	No	1	0.7	94.7	
	I don't Know	8	5.3	100	
Do you know about (DPT) vaccine (Diphtheria-Pertussis-Tetanus) ?	Yes	139	92.7	92.7	Bin. test P=0.000 (HS)
	No	11	7.3	100	
Pertussis can be prevented by vaccination(DPT) vaccine?	Yes	131	87.3	87.3	$\chi^2= 199.7$ P=0.000 HS
	No	1	0.7	88	
	I don't Know	18	12	100	
Health education play important role to prevent Pertussis disease?	Yes	146	97.3	97.3	$\chi^2= 134.4$ P=0.000 HS
	No	0	0	97.3	
	I don't Know	4	2.7	100	
Why immunization is un important?	Cures diseases	15	10	10	$\chi^2= 155.6$ P=0.000 HS
	Prevents diseases	122	81.3	91.3	
	I don't know	13	8.7	100	
At which age should be started with (DPT) vaccine?	At birth	7	4.7	4.7	$\chi^2= 73.96$ P=0.000 HS
	At 2 months of age	93	62	66.7	
	I don't know	50	33.3	100	
How many doses of (DPT) vaccine are needed for a child to be protected against Pertussis ?	Three	15	10	10	$\chi^2= 37.96$ P=0.000 HS
	Five	73	48.7	58.7	
	I don't know	62	41.3	100	

(*) **HS: Highly Sig. at $P < 0.01$; NS: Non Sig. at $P > 0.05$**
Bin. : Binomial test; χ^2 : Chi – Square test.

Table (5): Distribution the main sources of information about pertussis disease and vaccination at post-test period with comparison significant

Question	Source of information	No.	%	Cu m. %	C.S. (*) P-value
What are the main source of information about Pertussis and vaccination?	Radio and Television	3	2	2	$\chi^2 = 254.0$ $P = 0.000$ HS
	Publications and pamphlets	5	3.3	5.3	
	Health employees	142	94.7	100	

(*) **HS: Highly Sig. at $P < 0.01$**
 χ^2 : Chi – Square test.

Discussion

Socio-Demographical characteristics of mothers

The results showed that most of the mothers were between the age groups (20 – 29) yrs., and they were accounted 63 (42%). The most of females in this group were at childbearing age or have one child at least, therefore, those mothers attending to PHCCs for vaccination of their children or visiting then health center for treatment and vaccination, this study is strongly agree with the results of Asim, in Faisalabad-Pakistan (2012), who demonstrated that the majority of the respondent (51.2%) were belonging to the young age group 18-30 years, the mean age was (26.82), (3.21) S.D [11]. According to marital status, the vast majority of the studied sample was reported as married, and they are accounted 148 (98.7%). This is because sample of the study included or targeted married mothers more than others groups. The results of this study is in agreement with a study done by Ojikutu R.K., (KAP) study in Lagos State-Nigeria (2012), who found that over (72%) of the respondents are married [12]. Regarding to level of education, the greater number of them illustrated low levels of education, such as illiterate 41 (27.3%), read-write and primary schools, they are accounted 78 (52%). This is because these mothers were unfortunately did not have the opportunity to be enrolled in the education and complete study. This result is strongly agreed with results of Hamid, in

Kashmir-India (2012), who mentioned (80%) of the study sample were illiterate or had only primary education [13]. With respect to occupational aspect, the majority of the sample are "Housewife", and they accounted for 78 (52%) of the total sample. This is because most of the mothers unable to work because of family responsibilities or their ageing or suffering from ailments, and then missing opportunity to seeking on the job. This result is in agreement with results of Hamid, in Kashmir-India (2012), who mentioned that among the mothers (93%) were housewife [13]. Relative to "Number of Children", results indicated that a highest percentages of the study sample were obtained at the first group (1-2) and second group (3-4), and they are accounted 50 (33.3%), 51(34%) respectively. The results of this study is in agreement with study of Ojikutu, in Lagos State-Nigeria (2012), he found that the mothers who have between 1 and 5 children are (82.2%) and (11.6%) have 6 to 10 children while others have more than 10 children [12].

Mothers knowledge concerning pertussis disease at pre-test period

Lack of available supportive evidence and studies for discussion results of the present study in the literatures, it will be discussed briefly not in details (item by item). Results indicated that there are a highly significant differences at $P < 0.01$ between different dichotomous categories responding for all

studied items, this is because the mothers have acceptable health information about the disease and vaccines (previous knowledge) which have been acquired from many sources such as health workers through frequent attending to PHCs or may be obtained from other sources such as (T.V programs, lectures, health pamphlets, etc...), addition to that, some mothers have acquired information due to affected their children with pertussis disease. This result had similarity to the result of Phommahansy, (Quasi-experimental research, a two group pre-test and post-test design), in Sikhothaboung-Vientiane (2010), who demonstrated that the mothers knowledge and health beliefs after intervention between groups were significantly different ($p < 0.05$), but the number of children receiving immunization between groups were not significantly difference [14]. In addition to that, the study coincided with other study which done by OMOLE, in South West Nigeria (2010), who demonstrated that (71.4%) mothers having enough knowledge on immunization regimen compliance and (28.6%) mothers without enough knowledge [15], all these studies nearly agreed with the results of this study.

Mothers' knowledge concerning pertussis disease at post-test period

Absence or lack available of supportive evidence and studies for discussion of the result of the present study in the literatures, it will be discussed briefly not in details (item by item).

The results indicated that there are a highly significant differences at $P < 0.01$ between the different dichotomous categories responding for all studied items. This is justify by the same reasons which mentioned above in mothers knowledge concerning Pertussis disease at pre-test period which included: The mother have good health information about the disease and vaccines (previous knowledge) which have been acquired from many sources such as health workers through frequent attending to PHCs or may be obtained from other sources such as (T.V programs,

lectures, health pamphlets, etc...), also some mothers have acquired information due to affected their children with pertussis disease, addition to that, role of the researcher who act as health educator and then contributed to increasing knowledge of the mothers during this period. This result had similarity to the study of Phommahansy, (Quasi-experimental research, a two group pre-test and post-test design) in Sikhothaboung District-Vientiane (2010), who revealed that the mothers knowledge and health beliefs after intervention between groups were significantly different ($p < 0.05$), but the number of children receiving immunization between groups were not significantly difference [14].

Additionally, these findings are supported by Donnan, in Victoria-Australia (2013), who mentioned that one hundred and five families were surveyed. Of these, (93%) indicated that they had heard of 'pertussis' or 'whooping cough' and (75%) of mothers were aware the pertussis vaccine [16]. Also, Kapoor, in Ahmadabad (2010), he demonstrated that from (100) mothers, (83%) of the literate mothers had some knowledge about vaccines preventable diseases (VPDs) [17], all these studies agreed with the results of this study.

Sources of information about pertussis disease and vaccination at pre-test period and post-test period

The results at Pre-test period concerning item of asking about "What are the main source of information about Pertussis and vaccination?", showed that the majority of the mothers answered with "Health Employees" were 125 (83.3%), while the leftover with the others responding of "Radio-Television, and Publications-Pamphlets" answered were reported 19 (12.7%), 6 (4%) respectively.

Whereas, the results at Post-test period concerning item of asking about "What are the main source of information about Pertussis and vaccination?", showed that the majority of the mothers 142 (94.7%) were answered with "Health Employees", while the leftover with the others responding of "Radio - Television,

and Publications - Pamphlets" answered were reported 3 (2%) and 5 (3.3%) respectively. The main causes for that most of the mothers gained information about the disease and vaccines through lectures, seminars and individuals meetings which conducted by health educators inside and outside the health centers, thus health educator play important role as a source of information and knowledge of the mothers toward the disease and vaccinations. These findings were comparable with Caingle S.E., in Barangay-Davao City (2011), in their results revealed that source of information of parents regarding immunization (68.75%) were health workers in Barangay city, (15.62%) physicians and (15.62%) friends [18]. Whereas, in comparison with other study done by Bofarraj M., in Libya (2011), which in their study mentioned that paramedical workers were the main source of information to respondents of completely immunized children (88.28%), followed by T.V, posters and symposia respectively[19], these findings strongly agree with the findings of the present study.

Conclusion

Knowledge of mothers in this study concerning pertussis disease and vaccination was acceptable at pre-test period. While, Health education program which was applied in this study play an important role in raising the information and knowledge of participants concerning the disease and vaccination. This improvement was clearly presented in the results of the post-test.

References

- 1) **Peter M. Strebel, Dalya Guris and Steven G. F. Wassilak.**, Pertussis. In: Maxy, Rosenau and Last. Public Health & Preventive Medicine. Appleton& Lange. 14th ed., 1998; P:98-102.
- 2) **Duclus P.**, Pertussis. In: David L. Heymann. Control of communicable Diseases manual. American public health association. 18th ed., 2004; P: 399-404.
- 3) **Crowcroft NS., Stein C., Duclos P. and Birmingham M.**, How best to estimate the global burden of pertussis? Lancet Infect Dis., (3), (7) 2003;:413-418.
- 4) **World Health Organization(WHO).**, List of Basic Terms. Health Promotion Glossary. (1998): (pp. 4). Retrieved May 1, 2009. Available at: http://www.who.int/hpr/NPH/docs/hp_glossary_en.pdf.
- 5) **Adhikari P, Dhungel S, Shrestha R. and et al.** Knowledge, attitude and practice (KAP) study regarding facts for life. Nepal Med Coll J, 2006; Vol. (8);:93-96.
- 6) **Anjum Q., Omair A., Inam SN. and et al.** Improving vaccination status of children under five through health education. J Pak Med Assoc, 2004; (54), 610-613.
- 7) **Heininger U.**, An internet-based survey on parental attitudes towards immunization. Vaccine, 2006; (24);:6351-6355.
- 8) **Smith PJ., Kennedy AM., Wooten K., Gust DA. And Pickering LK.**, Association between health care providers' influence on parents who have concerns about vaccine safety and vaccination coverage. Pediatrics, 2006; (118);:1287-1292.
- 9) **Boëlle PY.**, Theoretical epidemiology and vaccine. Rev Med Interne, 2007; (28);:161-165.
- 10) **Yarwood J., Noakes K., Kennedy D., Campbell H. and Salisbury D.** Tracking mothers attitudes to childhood immunization 1991-2001. Vaccine, 2005; (23);: 5670-5687.
- 11) **Asim M., Malik N., Yousaf H., Gillani I., Habib N.**, An Assessment of Parental Knowledge, Belief and Attitude toward Childhood Immunization among Minorities in Rural Areas of District Faisalabad, Pakistan. Mediterranean Journal of Social Sciences, 2012. 3 (11),
- 12) **Ojikutu R. K.**, Beliefs, Knowledge and Perception of Parents to Peadeatric Vaccination in Lagos State, Nigeria. Journal of Management and Sustainability; 2012; 2 (2),
- 13) **Hamid S., Andrabi S.A.H., Fazli A., and Jabeen R.**, Immunization of Children in a Rural Area of North Kashmir, India: A KAP Study. Online J Health Allied Scs., Vol. (11), Issue (1), 2012.

- 14) **Phommathansy K., Wichiencharoen K., and Nookong A.,** The Effects of Planned Instruction on Mother's Knowledge, Health Beliefs and Number of Children Receiving Immunization in Sikhothtaboung District, Vientiane, Lao P.D.R.J Nurs Sci., Vol.(28), No.(3), 2010.
- 15) **OMOLE M. and OWODUNNI K.,** Mothers' Knowledge of Immunization Programme and Factors Influencing Their Compliance at a Children Hospital in South West Nigeria. (JPBMS), Vol. (21), Issue (21), 2012; P:1-4.
- 16) **Donnan E.J., Fielding J.E. , Rowe S.L. , Franklin L.J. and Vally H.,** A cross sectional survey of attitudes, awareness and uptake of the parental pertussis booster vaccine as part of a cocooning strategy, Victoria, Australia. BMC Public Health, Vol.(13), 2013; P:1-9.
- 17) **Kapoor R., and Vyas S.,** Awareness and knowledge of mothers of five children regarding immunization in Ahmedabad. health line, Vol. (1) Issue (1), 2010; P:12-15.
- 18) **Caingles S. and Lobo J.,** Survey on the knowledge, attitudes and practices of parents in Barangy 8A, District 1, Davao city regarding their childrens immunization, Vol. (12), No.(1), 2011.
- 19) **Bofarraj M.,** Knowledge, attitude and practices of mothers regarding immunization of infants and preschool children at Al-Beida City, Libya 2008. Vol.(9), No.(1), 2011; P:29-34.