ejpmr, 2019,6(10), 529-538

SJIF Impact Factor 6.222

EUROPEAN JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

www.ejpmr.com

Research Article

ISSN 2394-3211

EJPMR

KNOWLEDGE, ATTITUDE AND PRACTICE OF MOTHERS IN RELATION TO IMMUNIZATION OF INFANTS AND PRESCHOOL CHILDREN IN QASSIM REGION, SAUDI ARABIA

Reem Rahib AlMutairi[1], Dr. Sarah Ali[2]* and Dr. Syed Raziur Rahman[3]

[1]Department of Medical Laboratories, College of Applied Medical Sciences, Qassim University, Buraydah, Al Qassim, Saudi Arabia.

[2]Assistant Professor, Microbiology, Department of Medical Laboratories, College of Applied Medical Sciences, Qassim University, Buraydah, Al Qassim, Saudi Arabia.

[3]Medical Director. Al-Shigah PHC. Buraidah. Al Qassim. Kingdom of Saudi Arabia.

***Corresponding Author: Dr. Sarah Ali**
Assistant Professor, Microbiology, Department of Medical Laboratories, College of Applied Medical Sciences, Qassim University, Buraydah, Al Qassim, Saudi Arabia.

Article Received on 12/08/2019 **Article Revised on 02/09/2019** **Article Accepted on 23/09/2019**

ABSTRACT

Introduction: World Health Organization has defined immunization as the process in which a person is made immune or resistant to an infectious disease, typically by the administration of a vaccine. Vaccination is an effective method to control vaccine preventable disease. Mothers play an important role in achieving complete immunization for their child. The aim of this study was to assess Knowledge, Attitude and Practice of mothers in relation to Immunization of Infants and Preschool Children in Qassim Region, KSA. **Methods**: Cross Sectional Study was conducted during the period (February-April 2018) in Qassim Region, KSA. A total of 200 Mothers who live in AlQassim and having, children of 1 month to 7 years were invited to participate. Data was collected using an online questionnaire included the informed consent. Data was entered in Microsoft Excel and analyzed in EpiInfo7 statistical software. **Results**: Mothers had adequate knowledge about child vaccination. Poor knowledge was reported among mothers in some aspects like, only 84 (42%) of them knew that more than one vaccine administered at the same time had no negative impact on child immunity. Mothers attitudes towards childhood vaccination was positive, except in some aspect like the association of vaccines with dangerous side effects, only 52 (26%) of them disagreed with that. Majority of mothers had a good practice toward childhood immunization. 195 (97.5%) mothers reported that they vaccinated their children according to MOH vaccination schedule. **Conclusion**: Mothers demonstrated an acceptable knowledge and positive attitude toward childhood immunization except in some aspects which may require an educational interventions. Most of mothers had a good practice toward childhood immunization.

KEYWORDS: Childhood immunization, Mothers, Knowledge, Attitude, Practices.

1.0. INTRODUCTION

The World Health Organization (WHO) has defined immunization as the process in which a person is made immune or resistant to an infectious disease, typically by the administration of a vaccine. Vaccines stimulate the body's own immune system to protect the person against subsequent infection or disease. Immunization is a proven tool for controlling and eliminating life-threatening infectious diseases and is estimated to avert between 2 and 3 million deaths each year. It is one of the most cost-effective health investments, with proven strategies that make it accessible to even the most hard-to-reach and vulnerable populations. (WHO, 2016).

Immunization has greatly reduced the burden of infectious diseases (Andre FE. et al 2008) it prevents illness, disability and death from vaccine-preventable diseases including diphtheria, measles, pertussis, pneumonia, polio, rotavirus diarrhea, rubella and tetanus (WHO, 2016). The effect of immunization is verified after different studies i.e. vaccine for influenza, the vaccine HPV and vaccine for chicken pox. The infectious diseases are prevented by effective method of immunization (CDC, 2011). Small pox was eradicated and polio, measles and tetanus are restricted from world due to vaccination.

When the Expanded Program on Immunization (EPI) was launched in 1974, less than 5% of the world's children were immunized during their first year of life against six killer diseases; Polio, Diphtheria, Tuberculosis, Pertussis (Whooping Cough), Measles and Tetanus (Novelli VM. Et al, 1991) From 1984 onward, the EPI had been implemented in Saudi Arabia as an integral and essential element of primary health care (Al-Shehri SN. et al. 1992). In Saudi Arabia, The basic

vaccinations identified in the Vaccination Certificate, from birth until enter to primary school to protect children in Saudi Arabia and all target groups in the community against diseases targeted by immunization, also, to maintain the Kingdom free from polio and to get rid of measles, rubella and mumps, as well as reducing the infection rates of other diseases targeted by immunization. (MOH, 2013).

The aim of this study is to assess the awareness of the importance of vaccination among mothers to make their children vaccinated. Therefore, this study will carry out to assess knowledge attitude and practice of mothers toward childhood immunization in Qassim region, Saudi Arabia.

2.0 RESEARCH OBJECTIVES

To assess Knowledge, attitude and practice of mothers in relation to immunization of infants and preschool children in Qassim Region Saudi Arabia.

SPECIFIC OBJECTIVES

2.1. To select mothers who have infant or preschool children of 1 month to 7 years randomly from the community to answer the questionnaire.
2.2. To Evaluate the knowledge of mothers about childhood immunization and its source.
2.3. To assess practice of mothers in related to immunization for their children.
2.4. To assess the vaccination status among children of participants mothers.
2.5. To Know the attitude of mothers towards childhood immunization.

3.0. METHODOLOGY

3.1 Study Design: Cross Sectional observational Study. Survey study was conducted during the period (February-April 2018) in AlQassim region, Saudi Arabia.

3.2 Study Sample: A total of 200 mothers of children aged from 1 month to 7 years who lived in AlQassim region, Saudi Arabia were invited to participate in filling the online questionnaire.

3.3. Inclusion Criteria

1) Mothers.
2) Lived in AlQassim region.
3) Had an infants or preschool children, aged from 1 month to 7 years.

3.4. Exclusion Criteria

1) Fathers.
2) Lived in other region, Not in AlQassim.
3) Did not have an infant or preschool children, aged from 1 month to 7 years.

3.5. Data Collection

The study was carried out among mothers who had infants and preschool children in Qassim region, Saudi Arabia. It was a survey study using an online questionnaire to be filled by mothers selected randomly from the community from different areas in Qassim region, the questionnaire included 30 close ended questions and just 2 open ended questions. These questions were formulated based on the questions and answers which is published by MOH in Saudi Arabia.

In General, the questions covered four areas: Demographic data of the participants mothers including Age, Occupation, Level of education, Socioeconomic status and Number of children. Knowledge level toward vaccination included, 10 items of (Yes or No) questions about the types of vaccines, benefits of vaccination, the diseases which be controlled by vaccination and the importance, contraindication and vaccination schedule with routes and doses. Score for the a correct knowledge statement was "1" and the wrong answer was given a score of "0" , the median of total knowledge score is "6 out of 10", mothers having score below the median value were considered as having "insufficient knowledge" about vaccination, whereas those who had score at or above the median value considered as having a "sufficient knowledge" about vaccination.

Practices tools comprised of 5 Closed questions, 3 of them (Yes or No) questions about the vaccination status of the child, vaccination cards and whether the child had taken the vaccines according to MOH schedule or not. 2 Open ended questions about the reasons of cessation of vaccines if the vaccination status of the child is partial and the reasons of missed or unavailable vaccination card.

Attitude questions included 10 statements with 2 point-scale (agree) and (disagree) the main categories of the attitude scale included the importance of vaccinations and its safety for children, the association between vaccinations and dangerous side effects and its effectiveness in preventions of diseases. Score for the attitude statements, was agree = 1 and disagree = 0 for the positive attitude; while agree = 0 and disagree = 1 for the negative attitudes. The median of total attitude score "6 out of 10". The attitude scores were evaluated as positive and negative attitude.

3.5. Ethical Considerations

Ethical approval for the study was obtained from Qassim University, College of Applied Medical Sciences, Departmental Research Review Committee. An informed consent was included in the first page of the online questionnaire, the questionnaire was opened only for mothers who agreed to participate in the research after explaining the aim and the importance of the study. data Confidentiality was maintained and used only for the research purpose.

3.6. Data Analysis plan

Data was entered using Microsoft Excel and analyzed using EpiInfo7 statistical software. Data Analysis was

conducted in three steps; Statistical analysis done to calculate the proportions and frequency distribution of each variable like age, occupation, education and number of children of the participant mothers. Analytic statistics, performed to estimate the statistical significance of associations among variables using cross-tabulation, like the association between knowledge and attitude towards child vaccination and possible related factors. Formal statistics was used to test the hypotheses, using chi-square test to investigate the association and p-value less than 0.05 was considered statistically significance. Results were presented using graphs and tables.

4.0. RESULTS

Table 1: Demographic characteristics of the participants mothers.

	Frequency(n=No)	Percent(%)
Age (years)		
18 - 29	75	37.50
30 - 39	91	45.50
40 - 49	27	13.50
50 or above	7	3.50
Education level		
Illiterate	4	2.00
Primary school	4	2.00
Intermediate school	5	2.50
Secondary school	47	23.50
Higher education	140	70.00
Occupation		
House Wife	106	53.00
Teacher	39	19.50
Nurse	5	2.50
Employee	24	12.00
Student	26	13.00
Number of children		
One	67	33.50
Two - three	68	34.00
> Three	65	32.50
Socio-economic status		
Below 5000	55	27.50
5000 - 10000	76	38.00
10000 - 20000	53	26.50
> 20000	16	8.00
Time taken to go to the health center		
<15 minutes	166	83.00
15-30 minutes	31	15.50
31-60 minutes	2	1.00
>60 minutes	1	0.50

Overall 200 mothers participated in the study. Their demographic characteristics are described in **Table No.1**. Majority of them were aged between 18–29 (37.5%) or between 30 – 39 (45.5%). Most of them had a higher education level (70%) which was the highest, among other educational categories, (23.5%) of them them were educated till the secondary school, whereas only (2%) are illiterate.

More than half of the mothers (53%) were house wife's, which was the highest percentage, among other occupation categories, whereas only (2.5%) of them were nurses which was the lowest percentage in the same category. More than one third of them (34%) had, two to three children, their socio-economic status ranged between 5000S.R – 10000S.R (38%) of them, and only (8%) had socio-economic status more than 20000S.R. Most of the mother,s (83%) needed less than 15 minutes to go to the closer health center to take the vaccines for their children, and (15.5%) of them needed 15-30 minutes.

Regarding the source of information, approximately one third of them (32%) got information about child vaccination from health workers, which was the highest percentage, followed by media (27.5%) and School/College (19%) whereas the lowest percentage was among the mother who reported, their main source of information was Family/Friends (10%) (Figure 1).

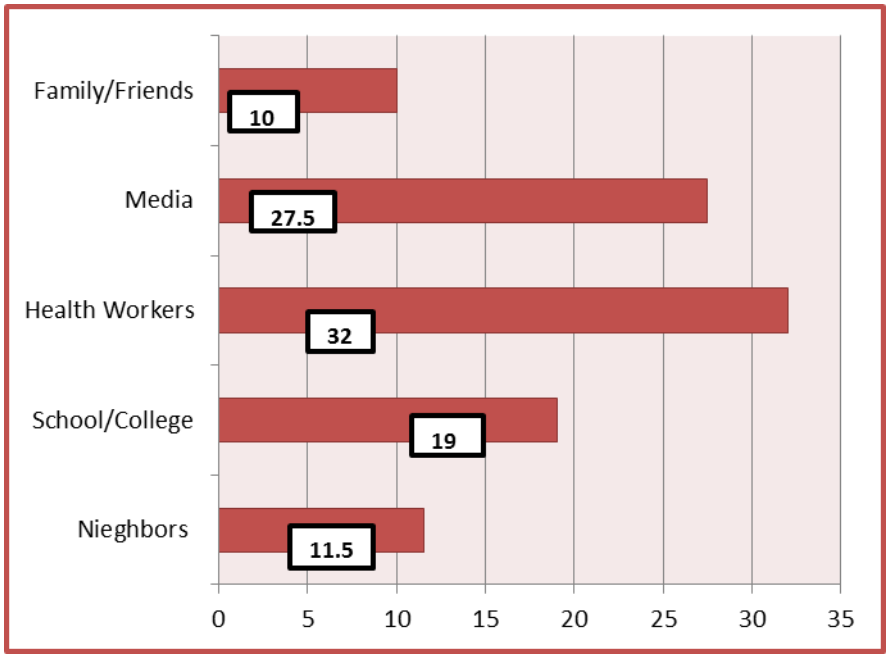

Figure 1: Source of information among mothers about child vaccination.

Table 2: Responses of mothers to knowledge statements (n=200).

Statements	Correct responses No.	%
Routine vaccination prevent children from some infectious diseases and its complications.(Yes).	180	90.00
More than one vaccines at the same time have NO negative impact on child immunity.(Yes).	84	42.00
Most diseases against which child are vaccinated occur during the first year of life.(Yes).	137	68.50
First dose of vaccine given at birth.(Yes).	184	92.00
Multi dose of the same vaccine given at intervals are important for child immunity.(Yes).	143	71.50
Vaccines can cause autism.(No).	135	67.50
Common cold, ear infections and diarrhea are not complication of vaccinations.(Yes).	112	56.00
Child immunization is prohibited in religious.(No).	174	87.00
It is preferred to vaccinate children against seasonal influenza.(Yes).	97	48.50
Vaccines are for all ages.(Yes).	139	69.50

As illustrated in **Table 2**, the majority of mothers (92%) knew that the first dose of vaccine was given at birth, whereas only (42%) of them they knew that more than one vaccines at the same time have NO negative impact on child immunity. More than two third of the mothers (67.5%) recognized that there is no association between vaccines and autism.

The majority of mothers (90%) knew that the Routine vaccination prevent children from some infectious diseases and its complications. Approximately half of the mothers (48.5%) preferred to vaccinate their children against seasonal influenza.

Table 3: Factors associated with knowledge of mothers regarding child vaccination.

	Level of knowledge about child vaccination		p-value*
	Sufficient N=155	Insufficient N=45	
Age (years)			
18 – 29 (n=75)	59 (78.66)	16 (21.34)	
30 – 39 (n=91)	66 (72.52)	25 (27.48)	
40 – 49 (n=27)	23 (85.18)	4 (14.82)	
50 or above (n=7)	7 (100.00)	0 (0.0)	0.231
Education level			
Illiterate (n=4)	2 (50.00)	2 (50.00)	
Primary school (n=4)	4 (100.00)	0 (0.0)	
Intermediate school (n=5)	3 (60.00)	2 (40.00)	
Secondary school (n=47)	39 (82.97)	8 (17.03)	
Higher education (n=140)	107 (76.44)	33 (23.56)	0.322
Occupation			
House Wife (n=106)	82 (77.37)	24 (22.63)	
Teacher (n=39)	28 (71.8)	11 (28.2)	
Nurse (n=5)	5 (100.00)	0 (0.0)	
Employee (n=24)	20 (83.33)	4 (16.67)	
Student (n=26)	20 (76.92)	6 (23.08)	0.617
Number of children			
One (n=67)	53 (79.11)	14 (20.89)	
Two – three (n=68)	47 (69.12)	21 (30.88)	
>Three (n=65)	55 (84.61)	10 (15.39)	0.094
Socio-economic status			
Below 5000 (n=55)	42 (76.36)	13 (23.64)	
5000 – 10000 (n=76)	61 (80.27)	15 (19.73)	
10000 – 20000 (n=53)	39 (73.57)	14 (26.43)	
>20000 (n=16)	13 (81.25)	3 (18.75)	0.808
Time taken to go to the health center			
<15 minutes (n=166)	129 (77.72)	37 (22.28)	
15-30 minutes (n=31)	23 (74.19)	8 (25.81)	
31-60 minutes (n=2)	2 (100.00)	0 (0.0)	
>60 minutes (n=1)	1 (100.00)	0 (0.0)	0.784
Source of information			
Neighbors (n=23)	19 (82.61)	4 (17.39)	
School/College (n=38)	29 (76.32)	9 (23.68)	
Health workers (n=64)	52 (81.25)	12 (18.75)	
Media (n=55)	42 (76.36)	13 (23.64)	
Family/Friends (n=20)	13 (65.00)	7 (35.00)	0.605
***chi-square test**			

From Table 3 which showed, mothers knowledge about childhood immunization correlated to their demographics, all the 7 mothers who aged 50 years or above had a sufficient knowledge about child vaccination (100%), followed by the mothers aged between 40 – 49 years and had a sufficient knowledge (85.18%).

All mothers whose, education level was primary school(100%) had a adequate knowledge, and half of the participant mothers who were illiterate(50%) had a adequate knowledge, which was the lowest percentage between categories of education, whereas (82.97%) of the mothers whose their education level was secondary school have a sufficient knowledge, followed by the mother whose have a higher education level and sufficient knowledge (76.44%).

All the nurses mothers who participated possesed a sufficient knowledge (100%), followed by the other employee mothers from other fields having sufficient knowledge (83.33%) whereas (71.8%) of teacher mothers had a sufficient level of knowledge, which was the lowest percent of sufficient knowledge among other categories of occupation.

The mothers having more than three children showed a higher percentage of sufficient knowledge (84.61%) compared to those who had lesser number of children.

(82.61%) of those who have a sufficient knowledge of information, their main source of information was from their Neighbors, followed by those mothers whose main source of information were health workers(81.25%).

Table 4: Responses of mothers to attitude statements towards child vaccination (n=200).

Statements	Correct responses No.	%
Child immunization is important. (Agree).	181	90.50
Immunization is more beneficial than harmful. (Agree).	163	81.50
Vaccines for child immunization are safe. (Agree).	129	64.50
There are Alternative mechanisms to prevent infants from VPD. (DisAgree).	58	29.00
Immunization associated with dangerous side effect. (DisAgree).	52	26.00
Child can become infected after immunization with the disease against which she or he was vaccinated. (DisAgree)	82	41.00
Compliance to immunization schedule is important. (Agree).	191	95.50
Immunization keep your child healthy. (Agree).	178	89.00
Recommend others to vaccinate their children. (Agree).	174	87.00
Side effect of vaccines can cause death. (DisAgree)	88	44.00

In Table 4 which showed the attitude statement, majority of mothers (95.5%) agreed to comply with immunization schedule as important. Most of them (90.5%) agreed that child immunization is important, whereas only (29%) disagreed with the presence of alternative mechanism which can prevent infants from VPD and (26%) disagreed with the association between immunization and side effects respectively. (41%) of mothers disagreed that the child can become infected after immunization with the disease against which she or he was vaccinated, (64%) of mothers agreed with that vaccines for child immunization are safe, whereas, (56%) agreed that vaccines caused death.

Table 5: Factors associated with attitude of mothers towards child vaccination.

	Attitude toward child vaccination		p-value*
	Positive N=149	Negative N=51	
Age (years)			
18 – 29 (n=75)	54 (72.00)	21 (28.00)	
30 – 39 (n=91)	67 (73.62)	24 (26.38)	
40 – 49 (n=27)	22 (81.48)	5 (18.52)	
50 or above (n=7)	6 (85.71)	1 (14.29)	0.696
Education level			
Illiterate (n=4)	2 (50.00)	2 (50.00)	
Primary school (n=4)	2 (50.00)	2 (50.00)	
Intermediate school (n=5)	3 (60.00)	2 (40.00)	
Secondary school (n=47)	33 (70.20)	14 (29.8)	
Higher education (n=140)	109 (77.86)	31 (22.14)	0.358
Occupation			
House Wife (n=106)	74 (69.82)	32 (30.18)	
Teacher (n=39)	34 (87.18)	5 (12.82)	
Nurse (n=5)	4 (80.00)	1 (20.00)	
Employee (n=24)	20 (83.33)	4 (16.67)	
Student (n=26)	17 (65.39)	9 (34.61)	0.150
Number of children			
One (n=67)	49 (73.13)	18 (26.87)	
Two – three (n=68)	50 (73.53)	18 (26.47)	
>Three (n=65)	50 (76.92)	15 (23.08)	0.860
Socio-economic status			
Below 5000 (n=55)	38 (69.08)	17 (30.92)	
5000 – 10000 (n=76)	57 (75.00)	19 (25.00)	
10000 – 20000 (n=53)	42 (79.25)	11 (20.75)	

>20000 (n=16)	12 (75.00)	4 (25.00)	0.685
Time taken to go to the health center			
<15 minutes (n=166)	129 (77.72)	37 (22.28)	
15-30 minutes (n=31)	17 (54.84)	14 (45.16)	
31-60 minutes (n=2)	2 (100.00)	0 (0.0)	
>60 minutes (n=1)	1 (100.00)	0 (0.0)	0.041
Source of information			
Neighbors (n=23)	17 (73.91)	6 (26.09)	
School/College (n=38)	31 (81.58)	7 (18.42)	
Health workers (n=64)	47 (73.44)	17 (26.56)	
Media (n=55)	39 (70.91)	16 (29.09)	
Family/Friends (n=20)	15 (75.00)	5 (25.00)	0.840
Knowledge about vaccination			
Sufficient N=155	128 (82.58)	27 (17.42)	
Insufficient N=45	21 (46.66)	24 (53.33)	<0.00001
***chi-square test**			

Table 5 showed mothers attitude toward childhood immunization correlated to their demographic characteristics. Mothers who had more than three children showed a positive attitude toward child vaccination (76.92%) which was higher, compared to mothers who had less than three children(73.53%) and (77.86%) of mothers with higher education level had a positive attitude which was higher among other categories of education level.

Regarding the time taken to go to the health center, mothers living near the health center and taken less than 15 minutes to reach there, had a positive attitude toward child vaccination (77.72%), p=0.041.

The highest rate of positive attitude in regarding to the source of information was among mothers who reported school/college as the main source of information about childhood vaccination (81.58%) followed by family/friends (75%) whereas the lowest rate observed among those mothers who reported media as the main source of information (70.91%). Mothers who had sufficient knowledge about childhood vaccination were more likely to have a positive attitude toward it and vice versa, p<0.00001.

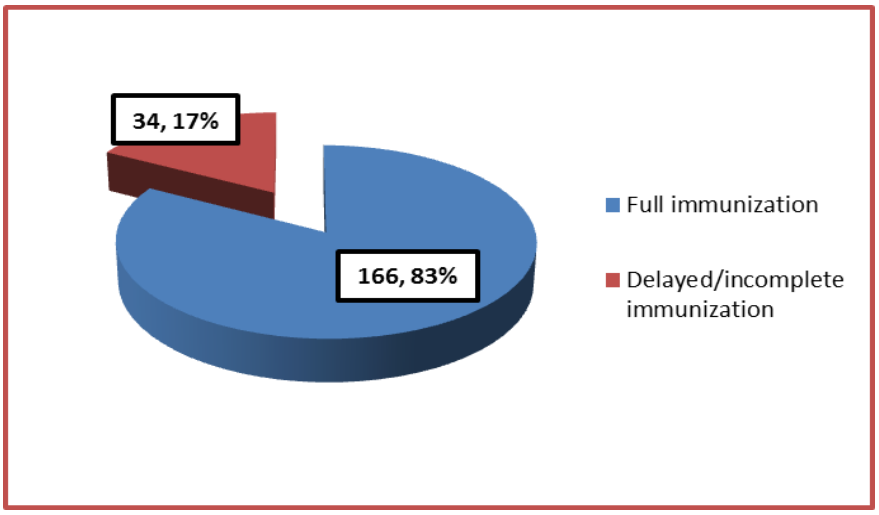

Figure 2: Status of child immunization.

Figure 2 illustrate the immunization status of the children, 166 (83%) out of 200 mothers completely immunized their children until the age group in which the children were catagorised, whereas only 34 mother (17%) did not complete all the vaccine for their children unto age group required.

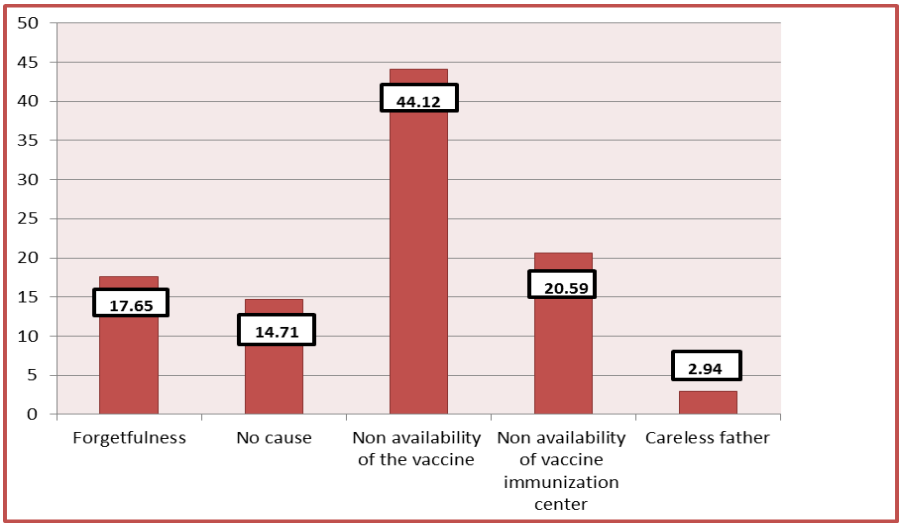

Figure 3: Causes of delayed/incomplete immunization of the children.

From Figure 3, among those mother who reported as have delayed/incomplete immunized children, the most often mentioned reason was non-availability of vaccines in the health center (44.12%) followed by non-availability of vaccine immunization center (20.95%) then followed by forgetfulness and other causes.

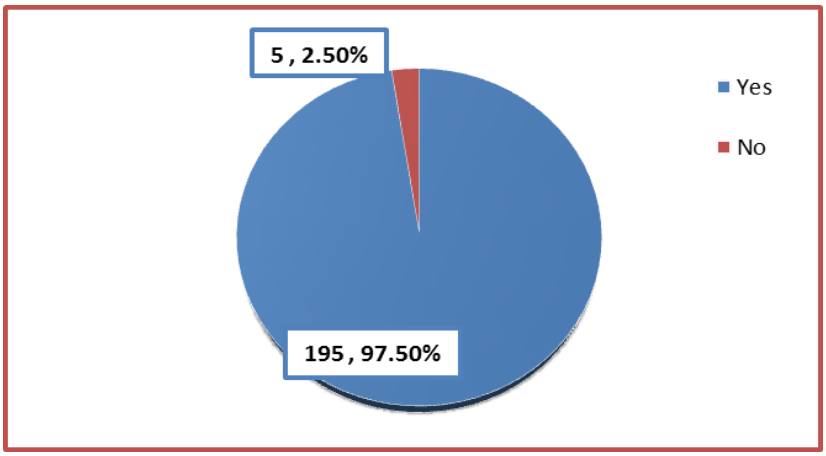

Figure 4: History of child vaccination according to MOH vaccination schedule.

As illustrated in Figure 4, majority of mothers (97.5%) reported vaccination their children according to MOH vaccination schedule.

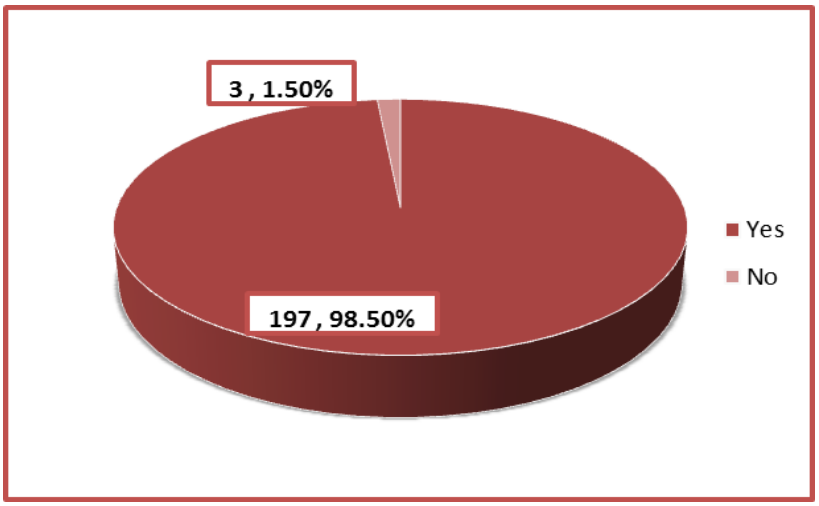

Figure 5: Presence of child vaccination cards.

Figure 5 show nearly all the participant mothers reported that they had vaccination cards for all of their children, except only three mothers (1.5%) who did not have a vaccination card, all of these three mother explained that was because they do not have any idea about the vaccination card.

5.0 DISCUSSION

Immunization has saved the lives of more children than any other medical intervention in the last 50 Years. Vaccines are one of the most cost-effective ways to save and improve the lives of children worldwide. (Sujath, R, et al. 2014). 2.5 million deaths a year continue to be resulted from vaccine preventable disease , mainly among children under 5 years old in poor Asian and African countries (WHO, 2015). Immunized the child against disease which can prevented by vaccines is one of the most important things to save children lives. Mothers play an important role in achieving this, as they are responsible for the health of their child.

In this study we aimed to assess knowledge, attitude and practice of mothers in relation to immunization of infants and preschool children. The results of the current study reveals (83%) of mothers completely immunized their child and only (17%) partially/unimmunized them, these finding almost agree with a study conducted in Libya by Mabrouka A. M. which revealed that (81%) of mothers completely immunized their child whereas only (19%) partially/unimmunized them, while in another study which is done in Bijapur City in India by Angadi, M, et al, (34.84%) of mothers were fully immunized their child, (62.58%) were partially immunized their child and (2.58%) were unimmunized.

About the causes of partial/ unimmunized child, in the current study, non availability of vaccine was the main reason, (44.12%) among mothers who partially/unimmunized their child, compared to other causes while in a study conducted in Libya the main cause was child sickness (54%) and in India lack of information was the main cause (97%).

Assessment of mothers knowledge in the current study showed a lot of variations in the responses of the questions. (68.5%) mothers in this study knew that most diseases against which child are vaccinated occur during the first year of life. In contrast, in a study conducted in Almadinah by Alharbi KM, et al. only (10.4%) of the participants knew that most diseases against which child were vaccinated occurred during the first year of life, this percent was lower than what we found in this study. While in a study conducted in Taif by Yousif MA, et al. (77.7%) of the participants knew that most vaccine preventable diseases, occurred, during the first year of life and this percent was higher than what we found in the current study.

Majority of mothers (90%) knew that routine vaccination prevent children from some infectious diseases and its complications. In contrast, in study conducted in UAE by Bernsen RM. et al, more than (85%) of the participants mothers knew the role of vaccines in prevention of some infectious diseases and its complications. While in a study conducted in Almadinah, only (40.2%) of the participants agreed with the role of vaccines against infectious diseases and its complications, level of awareness in UAE(85%) and Almadinah(40.2%) were lower than what we found in our results.

About the importance in giving multi dose of the same vaccine at intervals, (71.5%) of mothers in the current study knew the importance of taking more than one dose of the same vaccine at intervals for development of adequate and persisting Antibody responses. In contrast, in study conducted in Taif only (41.6%) of the participants knew the importance of multi dose vaccine, this percent was lower than what we found in our results.

In the current study, only (42%) of mothers agreed that more than one vaccine at the same time had no negative impact on the child immunity, whereas more than half of mothers (58%) thought that more than one vaccine at the same time may harm the child immunity. While in a study conducted in Almadinah (69.5%) of the participants agreed that more than one vaccine at the same time does not harm the immunity of the child. The percent of positive response was higher in study in Almadinah than what we found in our study, whereas in a study in Taif only (37.1%) showed positive awareness.

There is a recommendation in USA to vaccinate the children against seasonal influenza especially for those children who are under the age of 5 years. (48.5%) of mothers in the current study preferred to vaccinate their children against seasonal influenza. While in study conducted in Almadinah, only (33.1%) preferred to vaccinate their children against seasonal influenza, whereas in Taif nearly (45.7%) knew the importance of vaccinate their children against seasonal influenza. Our finding regarding this statement showed highest percentage of positive attitude, compared to other two studies, but still there is need of educational intervention in some aspects to correct the misconception, and propagate an accurate and adequate knowledge about childhood vaccination.

Assessment of mothers attitude towards child vaccination in the current study revealed that only (26%) of mothers disagree with the association of immunization with dangerous side effects, whereas (74%) of mothers believed that the vaccination can cause dangerous side effects for their children. In contrast, in that study which is conducted in Almadinah (55.4%) of the participants disagreed with that, which appeared as a high percentage compared to what we found. About the importance of compliance to immunization schedule, in the current study (95.5%) agreed with the importance of taking the vaccines for their child according to the immunization

schedule, while in Almadinah (85.7%) agreed with that, and in Taif only (64.7%) strongly agreed with that.

About the vaccination cards, in the current study (98.5%) of mothers reported that they had a vaccination cards for all their children, whereas only (1.5%) mothers, did not have a vaccination card for their children because they had no idea about the vaccination cards. While in that study which is done in India (69.03%) of mothers had vaccination cards for their children and (30.97%) of mothers did not have vaccination cards for their children. (97.5%) of mothers in the current study followed the MOH vaccination schedule for their children, this high rate of compliance may be because, proper vaccination is required for school registration in Saudi Arabia. The results revealed significant association between mothers who had sufficient knowledge about childhood vaccination and positive attitude toward it and vice versa, $p<0.00001$.

6.0 CONCLUSION

In General, mothers demonstrated a good practice, acceptable knowledge and positive attitude towards vaccinations of infants and preschool children except in some aspects, which require an educational intervention to correct these misconceptions and propagate an accurate information about childhood vaccination to the mothers.

7.0 REFERENCES

1. Alharbi KM, Alfahl SO (2017) Parents' Knowledge, Attitude and Practice towards Childhood Vaccination, AlMadinah, Saudi Arabia. Neonat Pediatr Med, 3: 126.
2. Al-Shehri SN, Al-Shammari SA, Khoja TA. Missed Opportunities for Immunization. Canadian Family Physician, 1992; 38: 1087-91.
3. Alyami AR, Alhashan GM, et al (2018) Knowledge, Beliefs and Practices of Parents towards childhood vaccination in Najran City, Saudi Arabia. Egyptian Journal of Hospital Medicine, 70: 1-7.
4. Al-Zahrani J, (2013) Knowledge, Attitude and Practices of Parents towards Childhood Vaccination. MAJMAAH J. HEALTH SCIENCES.
5. Anand S, Bärnighausen T. Health workers and vaccination coverage in developing countries: an econometric analysis. Lancet, 2007; 369: 1277-85.
6. Andre FE, Booy R, Bock HL, Clemens J, Datta SK, et al. (2008) Vaccination greatly reduces disease, disability, death and inequity worldwide. Bull World Health Organ, 86: 140-146.
7. Angadi, M. M., Jose, A. P., Udgiri, R., Masali, K. A., & Sorganvi, V. (2013). A Study of Knowledge, Attitude and Practices on Immunization of Children in Urban Slums of Bijapur City, Karnataka, India. Journal of Clinical and Diagnostic Research, 2803–2806.
8. Bernsen RM, Al-Zahmi FR, Al-Ali NA, Hamoudi RO, Ali NA, (2011) Knowledge, attitude and practice towards immunizations among mothers in a traditional city in the United Arab Emirates. J Med Sci, 4: 114-21.
9. Center for Disease Control and Prevention 2011. Children, the flu and flu vaccine.
10. Fauzia Faraj Bamatraf, Mazin Ahmed Jawass. Knowledge and Attitude Towards Childhood Immunization among Parents in Al-Mukalla, Yemen. World Family Medicine, 2018; 16(2): 24-31.
11. Mabrouka A.M. (2008) Knowledge, attitude and practices of mothers regarding immunization of infants and preschool children at Al-Beida City, Libya. Egypt J Pediatr Allergy Immunol, 9(1): 29-34.
12. Marskole P, Rawat R, Chouhan P, Sahu P, Choudhary R. Knowledge, Attitude and Practices on Vaccination among Mothers of under-5 Children, Attending Immunization Out Patients Department at Gwalior, Madhya Pradesh. Int J Sci Stud, 2016; 3(12): 235-237.
13. Mereena & Sujath, R. (2014): Study on Knowledge and Attitude Regarding Vaccines among Mothers of under-five Children attending Pediatric OPD in a Selected Hospital at Mangalore. Journal of Nursing and Health Science, 3: 39-46.
14. Ministry of health (2016) http://www.moh.gov.sa/HealthAwareness/EducationalContent/vaccination/Pages/ Questions.aspx
15. Novelli VM, Khalil N, Metarwah B, El-Baba F, Nahar R, Abu- Nahya M. Childhood immunization in the state of Qatar: Implications for improving coverage. Annals of Saudi Medicine, 1991; 11(2): 201-4.
16. Raharjo YCL. Cultural attitudes to health and sickness in public health programmes: a demandcreation approach using data from West Aceh, Indonesia. Health Trans, 1990; 2: 522-33.
17. Siddiqi N, Siddiqi AE, Nisar N, Khan A (2010) Mothers' knowledge about EPI and its relation with age-appropriate vaccination of infants in peri-urban Karachi. J Pak Med Assoc, 60: 940-944.
18. Tetanus. (updated 2017) Available from [https://www.cdc.gov/tetanus/].
19. Tufenkeji H, Kattan H. Childhood immunization in the Kingdom of Saudi Arabia. Annals of Saudi Medicine, 1994; 14(2): 91-3.
20. United States Centers for Disease Control and Prevention. A CDC framework for preventing infectious diseases. available from website [https://www.cdc.gov/oid/docs/id-framework.pdf] ".
21. World Health Organization, Global Vaccine Action Plan.
22. Yarwood J, Noakes K, Kennedy D, Campbell H, Salisbury D. Tracking mothers attitudes to childhood immunisation 1991-2001. Vaccine, 2005; 23: 5670-87.
23. Yousif MA, Albarraq AA, Abdallah MAA, Elbur AI (2013) Parents Knowledge and Attitudes on Childhood Immunization, Taif, Saudi Arabia. J Vaccines Vaccin, 5: 215.