

Knowledge and awareness about chickenpox vaccine among parents with children under the age of 5 years in Kuwait health centers in 2014

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ABSTRACT

Background: Kuwait government is thinking of introducing the varicella vaccine into the health centers, so it is critical to measure the awareness of parents with children below 5 years, before they do. This is to provide sufficient data that could make them design the proper campaign in different regions in the country that inversely correlates with the knowledge and awareness of the parents. This is to gain the maximum profits from this decision. **Objectives:** The aim of this study is to provide basic data to about the knowledge and awareness of parents about the chicken pox vaccine to help in dealing with chickenpox vaccination and disease in Kuwait. **Material and Methods:** This is a cross-sectional study that was conducted in a selected health centers in all six governorates of Kuwait. The participants were selected conveniently from parents of children under the age of 5 years of age who attended the selected Health Centers during the study period in June 2014. The parents were interviewed using a questionnaire that the researchers developed. The questionnaire contains demographic data, knowledge about chickenpox, knowledge about chickenpox vaccine, and attitude toward the vaccine. **Results:** The demographic data included both genders in which 152 (38.0%) were males and 248 (62.0%) were females. The age group between 26 and 35 years old were the most to answer the questionnaire. 336 (84.0%) were working parents. 92.25% of the candidates knew what a vaccine is. 81.5% of the candidates agreed that the role of a vaccine is to protect against disease. 91.25% of the candidates know about chickenpox disease. 71.5% of the candidates are interested in giving their child the vaccine. On evaluating the relationship between the knowledge level and different variables, there is no significant difference by gender or age. On the other hand, the level of education and region there was a difference seen. The higher level of education the more knowledge about chickenpox vaccine they had. **Conclusion:** The majority of the sample had a general knowledge about vaccines and a specific knowledge about chickenpox disease. One-third of them had already vaccinated their children and a major group is willing to vaccinate their children in the future if the vaccine is more readily available.


KEY WORDS: Knowledge; Awareness; Chickenpox Vaccine; Parents; Kuwait

INTRODUCTION

Chickenpox (varicella) is a viral infection that causes an itchy, blister-like rash. Chickenpox is highly contagious to

people who have not had the disease nor been vaccinated against it. Before routine chickenpox vaccination, virtually all people had been infected by the time they reached adulthood, sometimes with serious complications. Today, the number of cases and hospitalizations is down dramatically.^[1,2]

Signs and symptoms, which may appear 1 to 2 days before the rash, include fever, loss of appetite, headache, tiredness, and a general feeling of being unwell (malaise). The disease is generally mild in healthy children. In severe cases, the rash can spread to cover the entire body, and lesions may form in the throat, eyes and mucous membranes of the urethra,

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anus, and vagina. New spots continue to appear for several days.^[3,4] For most people, chickenpox is a mild disease. Still, it is better to get vaccinated. The chickenpox vaccine is a safe, effective way to prevent chickenpox and its possible complications.

Chickenpox is considered as a mild or moderate illness in immunocompetent children.^[5] Nevertheless, serious complications include CNS involvement, pneumonia, and secondary bacterial infections can arise.^[5] Furthermore, mortality rate of 2-3 cases per 100,000 affected people has been reported.^[5] In the United States, an accurate estimate of chickenpox complications is not clearly established; ranging from 40.7% to 83.3% of children hospitalized for this illness from 1988 to 1999.^[6-10]

To obtain more accurate information, another study in Italy shows that the data collected in children hospitalized from complicated or uncomplicated chickenpox during a 4-year period in three pediatric hospitals. 349 children were admitted for complicated or uncomplicated chickenpox, 47.3% children were hospitalized in Florence, 30.4% in Ancona and 22.3% in Turin; 54.2% of which were males. 261 (74.8%) children had complicated chickenpox with the age of 41 months. Neurological complications were the most common followed by the skin and soft tissue infections. 88 (25.2%) children had no complications. The mortality rate was 0.4% in children with complicated chickenpox.^[11]

A vaccine is a biological preparation that improves immunity to a particular disease. A vaccine typically contains an agent that resembles a disease-causing microorganism and is often made from weakened or killed forms of the microbe, its toxins or one of its surface proteins. The agent stimulates the body's immune system to recognize the agent as foreign, destroy it, and "remember" it so that the immune system can more easily recognize and destroy any of these microorganisms that it later encounters.^[1]

Varicella vaccines are attenuated vaccines based on the Oka VZV strain that has been modified through sequential propagation in different cell cultures. The attenuated strain is grown in cell culture, purified and lyophilized. Reconstituted vaccine is injected subcutaneously. Varicella vaccine has also been included in a combination vaccine with Measles-Mumps-Rubella-Varicella (MMR-V). A vaccine that contains higher level of the virus has also been developed for the prevention of shingles in the elderly.^[1]

To reduce general morbidity as well as the number of severe cases, several countries outside Europe, as well as some European countries have introduced routine varicella vaccination during the last two decades.^[12-17]

The United States was the first country to implement routine varicella immunization for all children in 1995. Vaccination

coverage in children 19-35 months of age reached 85% by 2003, immunization was highly effective in reducing varicella associated morbidity, hospitalization, and mortality.^[18]

Germany was the first country in Europe to introduce funded nationwide varicella vaccination as part of routine vaccination schedule. In July 2004, the German Advisory Committee on Vaccinations (STIKO) recommended vaccination in children of age 11-14 months.^[19] A combined MMR-V vaccine, licensed for all ages group was available in 2006.^[20] In July 2009, the STIKO recommendation was modified for children of age 15-23 months.^[21] From 2005 to 2009, nationwide voluntary sentinel surveillance of about 900 pediatricians and general practitioners estimated a reduction in varicella cases by 63% in children below 5 years of age, and by 55% in all age groups.^[20]

What made us choose this interesting topic of the research is because Kuwait government is thinking of introducing the varicella vaccine into the health centers, so we put in thought that it is critical to measure the awareness of parents with children below 5 years, before they do. This is to provide sufficient data that could make them design the proper campaign in different regions in the country that inversely correlates with the knowledge and awareness of the parents. This is to gain the maximum profits from this decision.

While checking previous researches, we found out a lot of misperception of parents toward the chicken pox vaccine in specific. In New York, 2002, a research concerning our case was conducted. 1011 parents with children between the ages of 4 and 12 were found to be more reluctant in vaccinating their children against chicken pox more than vaccinations against other diseases such as mumps and rubella. We further tried to look for the main reasons behind this misperception; it was surprising that most parents had a poor knowledge about the seriousness of the disease.^[4] This was because that 90% of parents knew that there was a vaccine but just 67% had taken action to children for vaccination^[4] and another 48% of the parents did not vaccinate their children because they did not believe that chicken pox was a serious disease.^[4] By looking further, we figured out that most parents did not have accesses to information, which shows that parents must have a motivator to take the vaccine.^[4] This made us wonder if there is another reason for this misperception about the seriousness of the disease. The same research^[4] showed that 32% of the parents thought that it is better to contract the disease naturally not knowing the complications, while 16% were concerned that the disease may still develop which is true but with lesser complications.

The aim of this study is to provide basic data to about the knowledge and awareness of parents about the chicken pox vaccine to help in dealing with chickenpox vaccination and disease in Kuwait.

MATERIALS AND METHODS

This is a cross-sectional study that was conducted in a selected health centers in all six governorates of Kuwait.

Kuwait is divided into six governorates: Al Ahmadi with 679.527, Al Asimah with 511.001, Al Farwaniyah with 932.859, Al Jahra with 449.350, Hawalli with 764.299, and Mubarak Al Kabeer with 210.475.

The following formula was used to determine the sample size.

$$N = [(Z^2) \times P(1-P)] / E^2$$

Where, N = sample size; Z = critical value (1.96); P = prevalence (expected to be 50%); E = error (considered to be 5%).

The above-mentioned figures applied on the equation and a sample size of 385 was estimated which was rounded to 400.

The sample size than distributed proportionally to the total population of each governorate as follow:

Governorate	Al Farwaniyah	Al Ahmadi	Al Asimah	Mubarak Al Kabeer	Hawalli	Al Jahra	Total
Population (in thousand)	932.859 (26.3)	679.527 (19.16)	511.001 (14.4)	210.475 (6)	764.299 (2154)	449.35 (12.7)	3,547.51 (100)
Sample (%)	105	77	58	24	86	50	400

The following health centers were selected randomly from each governorate:

- Hawalli Health center for Hawalli
- Fahaaheel Health center for Al Ahmadi
- Ardhiya Health center for Farwaniyah
- Khaldiya Health center for Al Asimah
- Al Qurain Health center for Mubarak Al Kabeer
- Al Jahra Health center for Al Jahra.

The participants were selected conveniently from parents of children under the age of 5 years of age who attended the selected health centers during the study period in June 2014.

The parents were interviewed using a questionnaire that the researchers developed. The questionnaire contains demographic data, knowledge about chickenpox, knowledge about chickenpox vaccine and attitude toward the vaccine.

All parents (the father or the mother) with a child under the age of five, Kuwaiti and non Kuwait, Arabic and non Arabic will be included in the study. Participants that do not speak, neither English nor Arabic, will be excluded from the study.

A verbal consent was taken from all participants before starting the interview. Ethical approval has been received from Arabian Gulf University Ethical Committee. The researched also received an agreement to conduct the study from the Department of Health information and Medical Records at the Ministry of Health in Kuwait.

RESULTS

We interviewed 400 parents who met the established criteria. The demographic data included both genders in which 152 (38.0%) were males and 248 (62.0%) were females. The age group between 26 and 35 years old were the most to answer the questionnaire; 188 (47.0%). The research contains the six Kuwaiti governorates (Al-Ahmadi, Al-Farwaniyah, Al-Asimah, Al-Jahra, Mubarak Al-Kabeer, and Hawalli). The majority of the sample was from Al-Farwaniyah governorate. The study targeted parents with children under the age of five in which 336 (84.0%) were working parents. 156 (36.5%) had a monthly income between 1000 and 1500 KD. 256 (64.0%) had a university degree (Table 1).

369 (92.25%) of the candidates knew what a vaccine is. 326 (81.5%) agreed that the role of a vaccine is to protect against disease, 42 (10.5%) thought it's to protect family members against diseases and 25 (6.25%) choose that it's for the treatment of diseases (Table 2).

365 (91.25%) know about chickenpox disease. 208 (52.0%) thought chickenpox is dangerous, and 192 (48.0%) thought it is not. 358 (64.5%) chose itchy rash as the symptom of chickenpox. 266 (66.5%) heard about chickenpox vaccine and 97 (24.25%) have had their children vaccinated (Table 3).

286 (71.5%) are interested in giving their child the vaccine and 114 (28.5%) were not interested. A 135 (33.75%) are not willing to pay for it but 314 (78.5%) will give the chickenpox vaccine if it's available for free (Table 4).

On evaluating the relationship between the knowledge level and different variables the results showed that there is no significant difference by gender or age. On the other hand, the level of education and region there was a difference seen. The higher the level of education the more knowledge about chickenpox vaccine they had. Hawalli was the highest while the Al-Jahra was the lowest (Table 5).

DISCUSSION

This study shows majority of the sample had a good knowledge about the seriousness of the chickenpox. More than half of the parents knew about the vaccine, but less than one-third of them had already vaccinated, and most of the parents did not vaccinate their children.

Table 1: Demographic characteristic of parents with children under the age of 5 years in Kuwait health centers in 2014 (n=400)

Variables	Frequency (%)
Gender	
Male	152 (38.00)
Female	248 (62.00)
Age	
15-25	58 (14.50)
26-35	188 (47.00)
36-45	118 (29.50)
>45	36 (9.00)
Region	
Al Ahmadi	77 (19.25)
Al Farwaniyah	105 (26.25)
Al Asimah	58 (14.50)
Al Jahra	50 (12.50)
Mubarak Al-Kabeer	24 (6.00)
Hawalli	86 (21.50)
Number of children	
1-2	173 (43.25)
3-4	156 (39.00)
5 and above	71 (17.75)
Working	
Yes	336 (84.00)
No	64 (16.00)
Income	
<500 kd	52 (13.00)
500-1000 kd	134 (33.50)
1000-1500 kd	146 (36.50)
>1500 kd	68 (17.00)
Education	
Illiterate	5 (1.25)
Read and write	5 (1.25)
Primary	9 (2.25)
Intermediate	22 (5.50)
Secondary	103 (25.75)
University	256 (64.00)

In comparing with other studies, most parents had a poor knowledge about how dangerous is the chickenpox.^[4] This was because that most of parents knew that there was a vaccine, but just more than half had taken action to children for vaccination and another less than half of the parents did not vaccinate their children because they did not believe that chicken pox was a serious disease.

Other studies show that the most of parents are not interested to vaccinate their children. While this study shows the majority of the parents are interested to vaccinate their children.^[4]

Table 2: General knowledge about vaccines of parents with children under the age of 5 years in Kuwait health centers in 2014 (n=400)

General knowledge about vaccines with response	Frequency (%)
Do you know what a vaccine is?	
Yes	369 (92.25)
No	31 (7.75)
Knowledge of the vaccine's role	
Protection against diseases	326 (81.50)
Treatment of diseases	25 (6.25)
Protect family members	42 (10.50)
Have you been vaccinated before?	
Yes	363 (90.75)
No	27 (6.75)
Don't know	10 (2.50)
Have all your children been vaccinated?	
Yes	368 (92.00)
No	32 (8.00)

Table 3: Specific knowledge about chickenpox disease of parents with children under the age of 5 years in Kuwait health centers in 2014 (n=400)

Specific knowledge about chickenpox disease	n (%)	
	Yes	No
Do you know what chickenpox is?	365 (91.25)	35 (8.75)
Do you think chickenpox is dangerous?	192 (48.00)	208 (52.00)
Symptoms you know about chickenpox?		
Itchy rash	258 (64.50)	142 (35.50)
Difficulty swallowing	15 (3.75)	385 (96.25)
Fever	182 (45.50)	218 (54.50)
Vomiting	31 (7.75)	369 (92.25)
Chest pain	9 (2.25)	391 (97.75)
Have you heard about chickenpox vaccine?	266 (66.50)	134 (33.50)
Have any of your children been given chickenpox vaccine?	97 (24.25)	303 (75.75)

The reason why most of parents in other studies are not interested in vaccinating their children against chickenpox is divided between the parents that thought that it is better to contract the disease naturally not knowing about the complications, and the parents that concerned that the disease may still develop but with lesser complications.^[4]

In our research, more than one-third thought that the vaccine might affect their child's immunity and one-fourth of the sample never heard about the vaccine.^[4]

Table 4: Attitude toward chickenpox vaccine of parents with children under the age of 5 years in Kuwait health centers in 2014 (n=400)

Attitude toward chickenpox vaccine	Frequency (%)
Are you interested in giving chickenpox vaccine to your children?	
Yes	286 (71.50)
No	114 (28.50)
If no, what is the reason? (n=114)	
Costly	9 (7.89)
May affect child's immunity	42 (36.84)
Never heard about it	28 (24.56)
Others	37 (32.46)
Are you willing to pay for it?	
Yes	265 (66.25)
No	135 (33.75)
Will you give the chickenpox vaccine to your children if it's available for free?	
Yes	314 (78.50)
No	43 (10.75)
Don't know	43 (10.75)

Table 5: Relationship of demographic characteristics chickenpox knowledge of parents with children under the age of 5 years in Kuwait health centers in 2014 (n=400)

Variables	Knowledge of chickenpox			P
	n (%)			
	Yes	No	Total	
Gender				
Male	126 (82.89)	26 (17.11)	152 (100.00)	0.546
Female	199 (80.24)	49 (19.76)	248 (100.00)	
Age				
15-25	49 (84.48)	9 (15.52)	58 (100.00)	0.115
26-35	158 (84.04)	30 (15.96)	188 (100.00)	
36-45	87 (73.73)	31 (26.27)	118 (100.00)	
>45	29 (80.56)	7 (19.44)	36 (100.00)	
Region				
Al Ahmadi	58 (75.32)	19 (24.68)	77 (100.00)	0.000
Al Farwaniyah	89 (84.76)	16 (15.24)	105 (100.00)	
Al Asimah	36 (62.07)	22 (37.93)	58 (100.00)	
Al Jahra	26 (52.00)	24 (48.00)	50 (100.00)	
Mubarak Al-Kabeer	22 (91.67)	2 (8.33)	24 (100.00)	
Hawalli	76 (88.37)	10 (11.63)	86 (100.00)	
Education				
Illiterate	0 (0.00)	5 (100.00)	5 (100.00)	0.000
Read and write	1 (20.00)	4 (80.00)	5 (100.00)	
Primary	9 (100.00)	0 (0.00)	9 (100.00)	
Intermediate	6 (27.27)	16 (72.73)	22 (100.00)	
Secondary	86 (83.50)	17 (16.50)	103 (100.00)	
University	220 (85.94)	36 (14.06)	256 (100.00)	

In our study, we thought that the cost of the vaccine is the reason behind why parents were reluctant to use the vaccine. However, our research shows <10% of the sample are not interested to vaccinate their children because of the vaccine is costly.

CONCLUSION

The majority of the sample had a general knowledge about vaccines and a specific knowledge about chickenpox disease. One-third of them had already vaccinated their children and a major group is willing to vaccinate their children in the future if the vaccine is more readily available.

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