

Knowledge and attitude about childhood vaccinations, a comparison between urban and rural areas in Saudi Arabia

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ABSTRACT

Background: Vaccines are important in preventing and reducing the occurrence of many various diseases, so population knowledge and attitude about childhood vaccination is critical to try to enhance their knowledge and correct their attitude toward vaccines. **Objective:** The purpose of this research is to assess the knowledge and attitude about childhood vaccination and compare that between urban and rural areas in Saudi Arabia. **Materials and Methods:** The study was made in Riyadh, representing urban areas and Rumah, representing rural areas, during the month of July 2014. An observational cross-sectional study was used. The data were collected by distributing questionnaire forms to the subjects. **Results:** The main results indicate that people living in Rumah do not know more than three diseases that are prevented by vaccines whereas people living in Riyadh know three or more diseases that are prevented by vaccines. The major age group was 18–30 years. Most of the subjects have at least one child to be vaccinated in both Riyadh and Rumah. **Conclusion:** Significant differences of knowledge and attitude about childhood vaccination were found between urban and rural areas. Similar studies should be carried out on a bigger scale.


KEY WORDS: Childhood; Vaccination; Urban; Rural

INTRODUCTION

Vaccines are important in preventing and reducing the occurrence of many various diseases, so population knowledge and attitude about childhood vaccination is critical to try to enhance their knowledge and correct their attitude toward vaccines. Differences in educational levels between people living there may have implications on their attitude toward childhood

vaccinations. Thus, they in some instances refuse to give vaccines to their children or do not appreciate the significance of the vaccinations given to children in preventing serious diseases in the future. This research is conducted to assess and compare the awareness about childhood vaccination. Among many health issues, infectious diseases used to be a major cause of death to infants, children, and adults that have been reduced or even eradicated by vaccines. Vaccines usually are given at health centers, schools, and airports.^[1] In the U.S, more than 10 million vaccines are given to the infants each year.^[2]

Vaccination is defined as an antigenic material administered to stimulate an individual's immune system to develop adaptive immunity.^[3] There are four types of vaccines. First, inactivated vaccine, which is a killed organism. Second type is the live attenuated vaccine, which is a living virus

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or bacteria that are unable to cause disease but trigger the immunity. Third type is the toxoids. Vaccines could be capsular polysaccharides, or purified protein also.^[4]

All vaccines have contraindications. Presence of contraindications indicates that the recipient is at increased risk of developing serious unwanted adverse effects. In general, adverse effects of vaccines include low-grade fever, headache, and allergy. However, there are some side effects, which are associated with some specific vaccines.^[5]

For example, adenovirus vaccine may cause abdominal pain and diarrhea. DTaP vaccine may result in redness, swelling, soreness, or tenderness in the site of injection. In addition, it may cause vomiting. Likewise, hepatitis A and hepatitis B vaccines may cause swelling and redness in the site of injection. Furthermore, headache, cough, fatigue, and itchy eyes are expected side effects with influenza vaccine.^[5]

A study made in UAE with a sample size of 240 mothers showed that 80% of the participants were aware of vaccination importance and more than 85% of the participants knew that childhood vaccinations prevent life-threatening diseases. The study also showed that the vaccination coverage in the United Arab Emirates is high due to the accurate follow-up program. A knowledge score of 1–9 was given (1 = poor knowledge and 9 = good knowledge), about one-third scored 5 or lower, and about 40% scored 7 or higher.^[6]

A study made in Yemen with a sample size of 180 child showed coverage level of 85% receiving complete vaccination, 12% receiving incomplete vaccination, and 3% without vaccination. The study indicates the main causes for vaccination discontinuations, which are the educational level of both the mother and the father, the immunization coverage of children.^[7]

Another study done in the US with a sample size of 17,313 parents showed that 60.2% of children parents neither delayed nor refused vaccines, 25.8% only delayed, and 8.2% only refused, and 5.2% both delayed and refused vaccines. The study is concluded by that the parents who delayed and refused vaccines were more likely to have concerns related to the safety of the vaccine and perceive fewer benefits to their children if they have given vaccines.^[8]

Table 1 shows routine childhood vaccinations in Saudi Arabia.^[9]

MATERIALS AND METHODS

Hypothesis

Knowledge and attitude toward childhood vaccination in Saudi Arabia are different between people living in urban and rural areas.

Objectives

1. Study knowledge and attitude and about childhood vaccination in Saudi Arabia.
2. Compare knowledge between urban and rural area.

Study Design

This was an observational cross-sectional study.

Time Frame

July 2014.

Case Definition (Inclusion Criteria)

- Saudi parents from the age of 18 to 60.

Exclusion Criteria

- Non-Saudis.
- Never married.
- Less than the age of 18.
- Above the age of 60.

Sampling Technique

We selected a mall in Riyadh and a public market in Rumah.

Urban areas are those that have a population more than 50,000.

Riyadh province was chosen to represent KSA. Riyadh province has 20 governorates. The city of Riyadh is the capital. The governorates are divided into Category A and Category B. Rumah, a Category B governorate, has a population of 19,437. It was chosen to represent rural areas. Riyadh city represents urban areas.

Sample Size

The sample size was calculated by the below equation where the prevalence of awareness among participants was quoted according to a study made in UAE to be 80%.^[6]

$$n = [(Z_{1-\alpha/2})^2 P (1-P)]/E^2$$

Considering That

- Confidence interval: 95%, so $Z_{1-\alpha/2} = 1.96$
- Margin of error is 5%

The total sample size is 300.

Procedure of Data Collection

Questionnaire forms were distributed, and data were collected using convenient sampling.

Study Instrument

The questionnaire was developed and conducted by the researchers in both areas. It was divided between urban and rural areas, 150 each.

Study Variables

Questionnaire was divided into three sections. The variables used were:

- Demographic.
- Knowledge.
- Attitude.

Pilot Study

Pilot study was conducted on 10 subjects before our actual research to evaluate the questionnaire. The questions were suitable, and no adjustments were needed.

Data Entry, Validation, and Analysis

Data were entered and analyzed by SPSS. Multivariate analysis was conducted to assess the difference between urban and rural population.

Ethical Consideration

Permission was taken from the Ethical Committee in the Arabian Gulf University and from the malls visited in Riyadh.

Statistical Analysis

When applying Chi-square test to study the comparison between Riyadh and Rumah, there was a significant difference in relation to their knowledge about the benefits of vaccinations, the knowledge about the diseases that can be prevented by vaccines, and the knowledge of the required childhood vaccinations.

Furthermore, there was a significant difference about their attitude toward childhood vaccination.

RESULTS

The majority of the subjects were female accounting for 112 (74.2%) in Riyadh and 96 (65.8%) in Rumah whereas males were found to be 39 (25.8%) in Riyadh and 50 (34.2%) in Rumah [Table 2].

The major age group was found to be between (18 and 30) 55% and 52.7% in Riyadh and Rumah, respectively. 44.4% in Riyadh and 34.9% in Rumah were between 30 and 55. Subjects more than 55 years old were the least frequent age group [Table 3].

Table 1: Routine childhood vaccination in Saudi Arabia

Age	Vaccine	Dose
At birth	BCG for newborns born to parents originally from endemic countries	Single dose
	Hepatitis b for newborns of HBsAg positive mothers or of unknown HBsAg status	Birth dose
2 months	DaPT+HB+Hib+IPV (Hexavalent)	1 st dose
	Conjugated Pneumococcal	1 st dose
	Rota vaccine (oral)	1 st dose
4 months	DPT+HB+Hib (Pentavalent)	2 nd dose
	OPV	2 nd dose
	Conjugated Pneumococcal	2 nd dose
	Rota vaccine (oral)	2 nd dose
6 months	DPT+HB+Hib (Pentavalent)	3 rd dose
	OPV	3 rd dose
	Conjugated pneumococcal	3 rd dose
12 months	MMR	1 st dose
	Conjugated pneumococcal	Booster
18 months	OPV	1 st booster
	DPT+Hepatitis B+Hib	Booster
	Hepatitis A	1 st dose
2 years	Meningococcal (ACYW)	Single dose
	Hepatitis A	2 nd dose
5–6 years	DTaP	2 nd booster
	OPV	2 nd booster
	MMR	2 nd dose

HBsAg: Hepatitis B virus surface antigen, MMR: Measles mumps rubella, OPV: Oral polio vaccine, Hib: Haemophilus influenzae type B vaccine, DPaT: Diphtheria, tetanus, and pertussis, DPT: Diphtheria, tetanus, pertussis

Table 2: Distribution of the patients according to gender

Group	Frequency (%)
Riyadh	
Male	39 (25.8)
Female	112 (74.2)
Rumah	
Male	50 (34.2)
Female	96 (65.8)

Table 3: Distribution of the patients according to age

Group	Frequency (%)
Riyadh	
18–30	83 (55.0)
30–55	67 (44.4)
More than 55	1 (0.7)
Rumah	
18–30	77 (52.7)
30–55	51 (34.9)
More than 55	18 (12.3)

Most of the subjects in Riyadh and Rumah have at least (2–5) children accounting for 68 (45%) and 58 (39.7%), respectively. Subjects who have only one child were 36 (23.8%) in Riyadh and 30 in Rumah. 22 of the subjects (14.6%) in Riyadh and 26 (17.8%) in Rumah were found to have more than 5 children. Out of the whole sample, 57 participants did not have any children, 25 of them were in Riyadh and 32 in Rumah [Table 4].

A total of 89 participants (58.9%) in Riyadh and 84 (57.6%) in Rumah have at least one child to be vaccinated. On the other hand, 62 participants (41.1%) in Riyadh and 62 (42.5%) did not have any children that need to be vaccinated [Table 5].

Majority of subjects in Riyadh and Rumah did not have a reason to stop vaccinate their children [Table 6]. The second common cause to stop vaccination is that their children develop a fever.

When asked about the benefits of vaccines, 131 respondents out of 151 (86.75) from Riyadh were aware that vaccines prevent diseases compared to 88 respondents (60.27%) from Rumah [Figure 1]. While 14 subjects (9.27%) from Riyadh and 44 (30.13%) from Rumah believed that vaccines may help in growth or make children stronger. on the other hand, 6 (3.97) subjects from Riyadh and 14 (9.58) from Rumah did not know the benefits of vaccines.

In Riyadh, the majority (66.23%) was found to know more than three different diseases that are prevented by vaccines. While in Rumah subjects who know 3 or <3 diseases constitute the majority (55.48%) [Figure 2].

In Riyadh, 79 subjects (52.32%) knew all the required vaccines that should be given to their children compared to 42 (28.77%) in Rumah. On the other hand, 22 subjects from Riyadh representing a small fraction (14.57%) compared to 48 (32.87%) in Rumah did not know any of the required childhood vaccines [Figure 3].

DISCUSSION

The knowledge toward the benefits of childhood vaccinations in people living in Riyadh is estimated to be 86.75% while in Rumah it decreases to 60.72%. Similar previous study made in UAE showed that 85% of the participants were aware of the benefits of vaccinations. This shows that knowledge differs between urban and rural areas and that may be attributed to differences in educational level.

Our study showed that the majority of subjects in both Riyadh and Rumah did not have a reason for vaccination discontinuation, 38% in Riyadh and 41.1% in Rumah, which might be due to the difference in the educational level between urban and rural areas in Saudi Arabia. This is confirmed by the previous study made in Yemen showed that the main

Table 4: Distribution of the patients according to number of children

Group	Frequency (%)
Riyadh	
One child	36 (23.8)
2–5	68 (45.0)
More than 5	22 (14.6)
None	25 (16.6)
Rumah	
One child	30 (20.5)
2–5	58 (39.7)
More than 5	26 (17.8)
None	32 (21.9)

Table 5: Distribution of the patients according to number of children who need to be vaccinated

Group	Frequency (%)
Riyadh	
One child	63 (41.7)
2–5	23 (15.2)
More than 5	3 (2)
None	62 (41.1)
Rumah	
One child	63 (43.2)
2–5	21 (14.4)
More than 5	0 (0)
None	62 (42.5)

Table 6: Distribution of the patients according to reasons behind stop giving vaccines

Reasons	Group	
	Riyadh	Rumah
Fever	45 (29.8)	25 (17.1)
Count (%)		
Cough	9 (6.0)	5 (3.4)
Count (%)		
Redness	10 (6.6)	6 (4.1)
Count (%)		
Fever and cough	8 (5.3)	8 (5.5)
Count (%)		
Fever and redness	3 (2.0)	10 (6.8)
Count (%)		
Cough and redness	2 (1.3)	0 (0.0)
Count (%)		
All of them	0 (0.0)	2 (1.4)
Count (%)		
None	58 (38.4)	60 (41.1)
Count (%)		
Not sure	16 (10.6)	30 (20.5)
Count (%)		

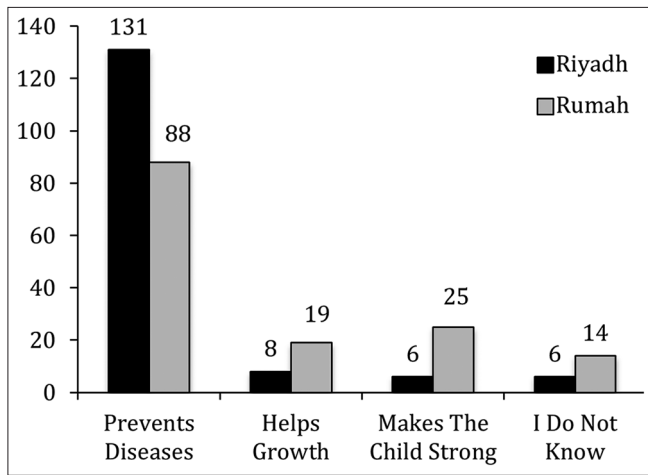


Figure 1: Benefits of vaccination according to the participants

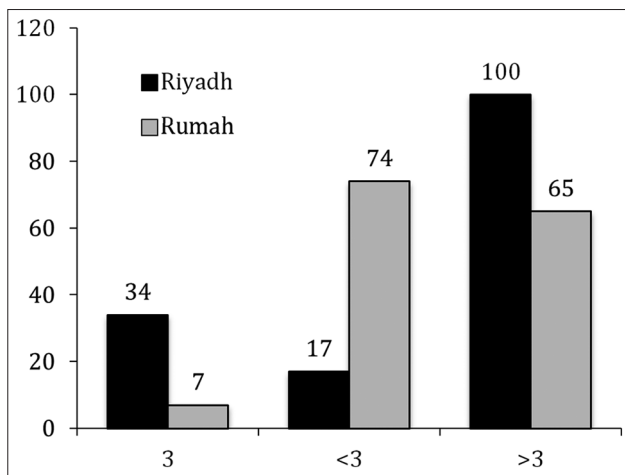


Figure 2: Number of known diseases that are prevented by vaccination according to the participants

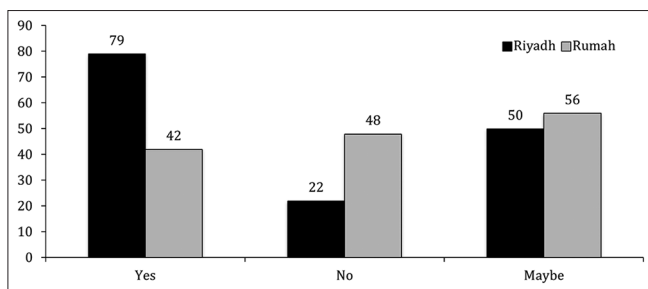


Figure 3: Knowledge of required childhood vaccinations

causes for vaccination discontinuation are the educational level and the immunization coverage.

A study in the US showed that the majority 60.2% did not delay or refuse to revaccinate their children and the parents who delayed or refused to revaccinate their children were concerned about the safety of vaccines.

Few researches were found that study the knowledge and attitude toward childhood vaccinations. To our knowledge,

this is the first study to compare knowledge and attitude of childhood vaccinations between people living in urban and rural areas.

CONCLUSION

We found from our study that the knowledge and attitude about childhood vaccination in Saudi Arabia are different between urban and rural areas and that might be due to the difference in educational level between the two areas. We recommend making campaigns to educate people in rural areas to improve their knowledge and attitude about childhood vaccinations. Furthermore, we recommend repeating this research on a bigger scale.

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