

# Vaccination in Saudi Arabia; a Knowledge, Attitude and Practices Study

## **Abstract:**

### **Background**

Vaccination is a safe, efficient and cost-effective contributor to the well-being of mankind. Because most of the important vaccines are taken during the first year of life, awareness level of parents should be enhanced to ensure the delivery of appropriate vaccination to their children.

### **Objectives:**

This study was conducted to assess knowledge, attitude and practice of the Saudi population in relation to vaccination.

### **Subjects and methods**

This was a community-based cross-sectional study. An anonymous web-based questionnaire about demographic characteristics in addition to knowledge, attitude and practice

in relation to vaccination was filled by 322 participants from Saudi Arabia.

## Results

Level of participant's knowledge was found to be significantly affected by several factors including; age ( $p=0.012$ ), marital status ( $p=0.045$ ) and occupation ( $p<0.001$ ). Marital status was the only factor affecting participant's attitude. All studied factors were found to have no significant effect on participant's practice.

## Conclusion

Tailored awareness campaigns and educational programs about vaccination are needed to improve vaccination rates and ensure homogenous immunity among the Saudi population.

**Keywords:** Vaccination, Knowledge, Attitude, Practice

## Introduction

Vaccination is considered as a main contributor to the well-being of mankind. This is due to its safety and significant efficacy in prevention and control of several diseases in addition its cost-effectiveness.<sup>1</sup>

As per the World Health Organization (WHO) recommendations, the majority of vaccines should be administered during the early years of child's life.<sup>2</sup> Parental awareness about vaccination is a key driver for enhancing the vaccination rate and compliance to vaccination schedule in addition to minimizing any potential vaccination errors. Knowledge, practice and attitude of parents are the main factors that affect their decisions to vaccinate their children.<sup>3</sup>

Many parents consider the mild symptoms associated with vaccination as a reason for not vaccinating their children. This is due to the deficiency of knowledge about vaccination types, benefits, side effects and contra-indications. Other factors contributing to vaccination errors are the parent's unawareness of vaccine-preventable diseases and how could a disease develop after a vaccine is administered.<sup>4, 5, 6, 7</sup>

A knowledge, attitude and practice study is a type of studies conducted in a particular population in order to collect required information about what they know, believe and do in relation to a specific topic. <sup>8</sup>

The current study was conducted to assess knowledge, attitude and practice of the Saudi population in relation to vaccination.

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## **Materials and Methods**

### **Subjects:**

This community-based cross-sectional study was conducted using an online survey. A sample of 322 participants from Saudi Arabia was included in this questionnaire.

Participants were asked to fill an anonymous questionnaire about their demographic characteristics and other questions related to their knowledge, attitude and practice in relation to vaccination. The study was conducted during the period from 22-August-2017 to 05-November 2017. Institutional review board approval was obtained before conducting any study-related procedures.

### **Data collected:**

The questionnaire was consisted of 38 questions. Eight questions collected general information about age, gender, marital status, educational level, occupation, nationality, religion and financial income. The remaining 30 questions collected data about knowledge, attitude and practice. Ten

questions were used for assessment of each of the three parameters. A different likert scale was used in each module.

Provided options for knowledge module were (yes, no or don't know), options for attitude were (strongly agree, agree, neutral, disagree or strongly disagree) while for practice, the options included (always, mostly, sometimes, rarely or never).

A relevant score for each of the previous answers was assigned as follows.

- Knowledge: yes=2, don't know=1 and no=0
- Attitude: strongly agree=5, agree=4, neutral=3, disagree=2 and strongly disagree=1
- Practice: always=5, mostly=4, sometimes=3, rarely=2 and never=1

### **Statistical analysis:**

Data were statistically described in terms of frequencies (number of cases) and valid percentages for categorical variables. Mean, standard deviations, minimum and maximum

were used to describe numerical variable. Comparison of numerical variables between the subgroups was done using Kruskal Wallis test for non-parametric data. Spearman's correlation was used to investigate the relationship between non-parametric numerical variables. P values less than 0.05 were considered statistically significant. All statistical calculations were done using computer program IBM SPSS (Statistical Package for the Social Science; IBM Corp, Armonk, NY, USA) release 21 for Microsoft Windows.

## Results

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### Participants' characteristics:

Age of participants ranged from 15 to 56 years with a mean ( $\pm$ SD) value of  $31.1 \pm 8.9$  years. Out of 322 participants, 29.2% were males and 70.8% were females.

Most of the participants (60.2%) were married, 36.3% were single, 2.8% were divorced and 0.6% were widowed.

All except 8 participants (97.5%) were Saudi. All except 2 participants (99.7%) were Muslims.

Regarding educational level, it was reported that 7.5% performed post-graduate studies, most of the participants (76.7%) carry a University degree, 12.7% received intermediate education while 3.1% received primary education.

Regarding occupation, 21.4% reported that they work in the healthcare field while 78.6% work outside of the healthcare field.

When asked about their monthly income, 30.5% reported that they earn less than 5,000 SR monthly, 36.6% earns 5,000 to 10,000 SR, 17.6% earns 10,001 to 15,000 SR while 15.3% earns more than 15,000 SR per month. More details are provided in table 1.

**Table 1 Demographics of participants**

Age	Minimum	Maximum	Mean	Std. Deviation
	15.0	56.0	31.1	8.9
Gender	Males		Females	



	Count		%		Count		%	
	94		29.2		228		70.8	
Nationality	Saudi				Not Saudi			
	Count		%		Count		%	
	312		97.5		8		2.5	
Religion	Muslim				Christian			
	Count		%		Count		%	
	316		99.7		1		0.3	
Work	In the healthcare field				Outside of the healthcare field			
	Count		%		Count		%	
	63		21.4		232			
Marital status	Single		Married		Divorced		Widowed	
	Count	%	Count	%	Count	%	Count	%
	117	36.3	194	60.2	9	2.8	2	0.6
Educational level	Primary		Intermediate		University		Post graduate	
	Count	%	Count	%	Count	%	Count	%
	10	3.1	41	12.7	247	76.7	24	7.5
Salary	< 5,000 SR		5,000 to 10,000 SR		10,001 to 15,000 SR		> 15,000 SR	
	Count	%	Count	%	Count	%	Count	%
	80	30.5	96	36.6	46	17.6	40	15.3

### *Factors affecting each of knowledge, attitude and practice:*

#### **Age:**

Data showed a significant positive correlation between age and knowledge score (Spearman's correlation coefficient is 0.154,  $p=0.012$ ). While no significant correlation was found between age and each of attitude score ( $p=0.096$ ) and practice score ( $p=0.813$ ).

#### **Gender:**

Gender was found to have no significant effect on scores of knowledge ( $p=0.153$ ), attitude ( $p=0.121$ ) or practice ( $p=0.920$ ).

#### **Marital status:**

Unlike gender, marital status was found to have significant effect on knowledge and attitude scores. Married participants got significantly higher knowledge scores ( $p=0.045$ ) compared to other groups. And for attitude, significantly higher scores ( $p=0.002$ ) were reported among married and

divorced participants. While there was no significant effect for marital status on practice score ( $p=0.304$ ).

### **Nationality:**

The same as gender, nationality was found to have no significant effect on knowledge ( $p=0.470$ ), attitude ( $p=0.572$ ) or practice ( $p=0.345$ ). The same was reported for religion where no significant effect on knowledge ( $p=0.471$ ), attitude ( $p=0.690$ ) or practice ( $p=0.163$ ) was revealed.

### **Educational level:**

Educational level did not affect the knowledge score significantly ( $p=0.149$ ). Also, no significant effect for educational level on attitude ( $p=0.591$ ) or practice ( $p=0.468$ ) scores was found.

### **Occupation**

Unlike educational level, occupation significantly affected the knowledge score ( $p<0.001$ ) where higher scores were reported among participants who work in the healthcare field

compared to those working outside of the healthcare field.

While no relationship was found between occupation and attitude score ( $p=0.350$ ) or practice score ( $p=0.868$ ).

### **Financial income:**

Monthly income was found to have no significant effect on knowledge score ( $p=0.117$ ). Moreover, no significant effect was found for monthly income on attitude score ( $p=0.054$ ) or practice score ( $p=0.330$ ).

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## Discussion

It's recently projected that by the year 2035, with enhancing the existing disease treatment and prevention measures and innovating new measures, we can see a "grand convergence in public health" (GCIPH).<sup>9</sup>

As per the Centers for Disease Control and Prevention (CDC), Vaccination is considered as one of the best methods by which parents can protect their children and teens from several harmful diseases. Many diseases that are very serious (may result in hospitalization or even death) can be prevented using vaccines.<sup>10</sup>

And accordingly, sustainable and proactive efforts are needed to improve the available vaccines and invent new required ones. However, the availability of good vaccines is not sufficient alone to minimize the risk of developing diseases.<sup>11</sup>

It's important to enhance public awareness about vaccination. This couldn't be achieved without assessing the real-life awareness level first in order to target the areas of deficiency.

This community-based cross-sectional study was conducted to assess the knowledge, practice and attitude of parents in relation to vaccination.

In our study, level of participant's knowledge was found to be significantly affected by several variables including; age ( $p=0.012$ ) and occupation ( $p<0.001$ ). This somehow differs from the results of a similar study conducted in Italy where the level of knowledge was significantly associated with the participant's age and level of education.<sup>12</sup>

In addition, marital status was found to have a significant effect on knowledge ( $p=0.045$ ) and attitude ( $p=0.002$ ). This was consistent with a study conducted in Switzerland among working people where marital status significantly affected participant's knowledge about Hepatitis A vaccination ( $p=0.017$ ) and Tetanus vaccination ( $p<0.001$ ).<sup>13</sup>

All studied factors were found to have no significant effect on participant's attitude or practice except for marital status that significantly affected participant's attitude.

It is recommended that tailored educational programs be conducted to the public and to healthcare professionals because they are the most reliable advisors for the Saudi population.<sup>14</sup>

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## **Conclusion**

The current study findings suggest that knowledge of the Saudi community about vaccination is affected by several factors including age, marital status and occupation. And accordingly, conducting tailored awareness campaigns and educational programs for each category of the population will ensure better delivery of essential information about vaccination.

Additional studies in the same area are needed in order to further highlight the gaps in knowledge about vaccination strategies in Saudi Arabia in order to improve vaccination rates and ensure homogenous immunity among the whole community.



## References

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1 Angadi, M. M. "A Study of Knowledge, Attitude and Practices on Immunization of Children in Urban Slums of Bijapur City, Karnataka." Journal Of Clinical And Diagnostic Research, 2013, doi:10.7860/jcdr/2013/6565.3763.

2 "State of the world's vaccines and immunization. Third edition." WHO, World Health Organization, [www.who.int/immunization/sowvi/en/](http://www.who.int/immunization/sowvi/en/)

3 Gellin, Bruce G., et al. "Do Parents Understand Immunizations? A National Telephone Survey." Pediatrics, vol. 106, no. 5, Jan. 2000, pp. 1097–1102., doi:10.1542/peds.106.5.1097.

4 Ritvo P, et al. A Canadian national survey of attitudes and knowledge regarding preventive vaccines. J Immune Based Ther Vaccin. 2003;1(1):3. doi: 10.1186/1476-8518-1-3.

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5 Sporton R, Francis S. Choosing not to immunize: are parents making informed decisions? *Fam Pract.* 2001;18(2):181–188. doi: 10.1093/fampra/18.2.181.

6 Richards A, Sheridan J. Reasons for delayed compliance with the childhood vaccination schedule and some failings of computerised vaccination registers. *Aust NZ j public health.* 1999;23(3):315–317. doi: 10.1111/j.1467-842X.1999.tb01263.x.

7 Schmalz K, Larwa L. Problems encountered by parents and guardians of elementary school-age children in obtaining immunizations. *J Sch Nurs Off Publ National Assoc Sch Nurs.* 1997;13(1):10–16.

8 “a guide to developing knowledge, attitude and practice surveys” WHO, World Health Organization,  
[http://apps.who.int/iris/bitstream/10665/43790/1/9789241596176\\_eng.pdf](http://apps.who.int/iris/bitstream/10665/43790/1/9789241596176_eng.pdf)

9 Jamison DT, Summers LH, Alleyne G, Arrow KJ, Berkley S, Binagwaho A. Global health 2035: a world converging within a generation. *The Lancet.* 2013;382(9908):1898–1955.

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10 “For Parents: Vaccines for Your Children.” Centers for Disease Control and Prevention, Centers for Disease Control and Prevention, 17 July 2017,  
[www.cdc.gov/vaccines/parents/index.html](http://www.cdc.gov/vaccines/parents/index.html)

11 Levine, Orin S. “What drivers will influence global immunizations in the era of grand convergence in global health?”. *Vaccine*. 2017;35,  
doi:10.1016/j.vaccine.2016.09.071.

12 Angelillo IF, Ricciardi G, Rossi P, Pantisano P, Langiano E, Pavia M. Mothers and vaccination: knowledge, attitudes, and behavior in Italy. *Bulletin of the World Health Organization*. 1999; 77(3):224-29.

13 Lee C-Y, Naguel C, Gyurech D, Duvoisin N, Schilling J. Awareness of vaccination status and its predictors among working people in Switzerland. *BMC Public Health*. 2003;3(1).

14 Alqahtani AS, Althobaity HM, Aboud DA, Abdel-Moneim AS. Knowledge and attitudes of Saudi populations regarding

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seasonal influenza vaccination. *Journal of Infection and Public Health*. 2017;10(6):897–900.

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