

Family Physicians' Knowledge, Attitude, and Practice in Pediatric Vaccination in Tehran Comprehensive Health Services Centers Affiliated to Shahid Beheshti University of Medical Sciences in the year 2018

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Abstract

Background and Aim: Pediatric vaccination plays a decisive role in reducing morbidity and mortality caused by some infectious diseases. Therefore, family physicians' knowledge, attitude, and practice are critical factors to be considered in this context.

Methods: This descriptive study included 160 family physicians working in comprehensive urban and rural health service centers (n=100 and n=60, respectively). All the physicians who met inclusion criteria (141 women and 19 men) were chosen through the complete enumeration method. Participants completed questionnaires to assess their knowledge, attitude, and practice. Data were analyzed using Chi-Square tests in IBM software-SPSS Statistic version 20.

Results: The mean age of all physicians was 43.4, and their clinical practice experience was 16.1 years on average. Of all physicians, 21.4% had higher knowledge, 40.7% had more positive attitudes, and 12.9% were more effective in clinical practice. The relationship between gender with knowledge, attitude, and practice was statistically significant. However, no statistically significant relationship was found between the place of servicing and the study's main variables. By contrast, a significant relationship was found between the age of participants and the practice scores, and between years of clinical practice with knowledge ($p=0.004$) and practice ($p=0.010$). Moreover, the relationship between studying national guidelines on vaccination with knowledge and attitude was statistically significant.

Conclusions: High-quality education and increasing the quantity of schooling are key prerequisites for upgrading the knowledge of family physicians in pediatric vaccination. Similarly, attitude promotion entails additional and efficient national and international information on children's vaccination programs. Furthermore, revising educational courses and conducting more monitoring and supervising programs by efficient punitive and incentive instruments are essential for improving the practice of physicians. And ultimately, multicenter trials with larger sample sizes are recommended for future studies.

Keywords: Vaccination, Children, Knowledge, Attitude, Practice

Introduction:

Except for safe drinking water, no other modality has had such a major effect more than vaccination on mortality reduction, especially in children, and population growth [1]. Vaccination is among the most effective public health strategies that save millions of lives each year [2]. Therefore, it is crucial to educate future public health professionals in their early working days to promote the culture of public vaccination, especially for parents. Data suggest that formal interventions are of paramount importance and priority for health providers to expand their knowledge and attitudes toward vaccination [3].

Immunization by vaccination is among the most affordable interventions to prevent a variety of major diseases, especially in poor communities with malnourished children who die mostly from preventable diseases [4].

All individuals can have a healthy life by adopting fundamental preventive measures such as vaccinations by health professionals as a huge workforce in countries [5]. Healthcare providers are the foundation of vaccinations in urban and rural areas [6].

The success or failure of immunization programs depends on preventive programs by vaccination, including the maintenance, transport, and administration of vaccines, as well as factors such as knowledge, attitudes, and practices of health workers [7].

Improving immunization in children under the age of five years is of utmost priority for immunization programs [8]. Immunization programs aim to promote the culture of vaccination for the efficient control of preventable diseases and morbidity and mortality reduction among vulnerable individuals. Studies show that health workers play a critical role in satisfactory children's vaccination coverage [9].

The knowledge and attitude of health workers have a significant impact on the publicization and acceptance of various vaccines [10]. Educational interventions for immunization service providers have been shown to improve their knowledge and practice and facilitate the acceptance of immunization by society [11].

A 2016 study in India investigated the awareness of 144 health workers by their knowledge and practices of immunization. In this descriptive cross-sectional study, a big gap was found in knowledge and practices of immunization among workers. There was a significant relationship between awareness and practices of the target group ($P < 0.05$). It was concluded that developing awareness and practice of the target group in pediatric vaccination entails the implementation of better, efficient, and regular training courses [12].

This study attempts to assess the knowledge, attitudes, and practices of family physicians in pediatric vaccination in Tehran's comprehensive urban health service centers affiliated to Shahid Beheshti University of Medical Sciences (SBUMS). The study aims to upgrade, alter, and improve the knowledge, attitudes, and practice of the target group in pediatric vaccination.

METHODS

A descriptive study was conducted on family physicians working in comprehensive urban and rural health services centers in Tehran affiliated to Shahid Beheshti University of Medical Sciences (SBUMS, Tehran). A total number of 160 family physicians working in comprehensive urban and rural health service centers ($n=100$ and $n=60$, respectively) who met inclusion criteria were included in the study. Participants were chosen through the complete enumeration method.

Data were collected through researcher-made questionnaires, consisting of 14 questions on knowledge, 12 questions on attitude, and 12 questions on the practice of physicians in pediatric vaccination. The content validity of the questionnaire was confirmed by six professors. Furthermore, the questionnaire's reliability and internal consistency were expressed by Cronbach's alpha and the ICC index, respectively. Data obtained from the completed questionnaires were analyzed using Chi-Square tests in IBM software-SPSS Statistic version 21.

FINDINGS

This study included 160 family physicians working in comprehensive urban and rural health service centers (141 females and 19 males). The mean age of all physicians was 43.4, and their clinical practice experience was 16.1 years on average. Of all physicians, 21.4% had higher knowledge, 40.7% had more positive attitudes, and 12.9% were more effective in clinical practice (Figure 1). Table 1 shows the relationship between the study variables with knowledge, attitude, and practice of family physicians. Relationships between knowledge, attitude, and practice are statistically given in Table 2. There was a significant correlation between gender and knowledge ($p = 0.001$), gender and attitude ($p = 0.004$), and gender and practice ($p = 0.023$). However, the relationship between age and knowledge ($p = 0.26$), and between age and attitude toward pediatric vaccination ($p = 0.657$) was not significant, while the age of participants was significantly correlated with their practice scores of pediatric vaccination ($p = 0.012$). In addition, years of experience in medicine were significantly associated with knowledge ($p = 0.004$) and practice ($p = 0.010$). The study of national vaccination instructions was found to significantly affect knowledge about pediatric vaccination ($p = 0.017$) and the attitude of physicians about vaccination ($p = 0.045$). By contrast, no significant relationship was found between studying national vaccination guidelines and practice ($p = 0.165$) and the overall score of physicians ($p = 0.275$).

There was also no significant relationship between the place of servicing (urban or rural) and the vaccination problem solving with knowledge, practice, attitude, and the total score obtained from questionnaires.

Table 1. Correlation between the study variables with knowledge, attitude, and practice of family physicians in pediatric vaccination

	Variable		Knowledge (%) – number of respondents		p-value	Attitude (%) – number of respondents		p-value	Practice (%) – number of respondents		p-value	All questions (%) – number of respondents		p-value
			Proper	Improper		Proper	Improper		Proper	Improper		Proper	Improper	
1	Gender	F	74.5 105	25.5 36	0.001	54.6 77	45.4 64	0.004	86.5 122	13.5 19	0.023	67.4 95	32.6 46	<0.001
		M	100 19	0 0	-----	89.5 17	10.5 2	-----	100 19	0 0	-----	100 19	0 0	-----
2	Age	<35	80.6 75	19.4 18	0.262	60.2 56	39.8 37	0.657	93.5 87	6.5 6	0.012	74.2 69	25.8 24	0.332
		>35	73.1 49	26.9 18	-----	56.7 38	43.3 29	-----	80.6 54	19.4 13	-----	67.2 45	32.8 22	-----
3	Experience (years)	10>	100 20	0 0	0.004	75 15	25 5	0.217	100 20	0 0	0.010	75 15	25 5	0.915
		10-20	72.6 53	27.4 20	-----	53.4 39	46.6 34	-----	91.8 67	8.2 6	-----	71.2 52	28.8 21	-----
		20<	76.1 51	23.9 16	-----	59.7 40	40.3 27	-----	80.6 54	19.4 13	-----	70.1 47	29.9 20	-----

4	Place of service	Urban	74 74	26 26	0.1 71	57 57	43 43	0.5 62	91 91	9 9	0.1 47	68 68	32 32	0.24 1
		Rural	83.3 50	16.7 10	-----	61.7 37	38.3 23	-----	83.3 50	16.7 10	-----	76.7 46	23.3 14	-----
5	Studying national vaccination guideline	Yes	73.2 90	26.8 33	0.0 17	54.5 67	45.5 56	0.0 45	86.2 106	13.8 17	0.1 65	69.1 85	30.9 38	0.27 5
		No	91.9 34	8.1 3	-----	73 27	27 10	-----	94.6 35	5.4 2	-----	78.4 29	21.6 8	-----
6	Measures to tackle barriers	At center	76.8 96	23.2 29	0.2 42	57.6 72	42.4 53	0.2 07	88 110	12 15	0.9 51	68 85	32 40	0.21 8
		Refer to closet comprehensive center	70 14	30 6	-----	75 15	25 5	-----	90 18	10 2	-----	85 17	15 3	-----
		Refer to the county's health care system	93.3 14	6.7 1	-----	46.7 7	53.3 8	-----	86.7 13	13.3 2	-----	80 12	20 3	-----

Table 2. Relationships between knowledge, attitude, and practice of physicians in pediatric vaccination

No.	Variable	Knowledge (%) – number of respondents		p-value	Attitude (%) – number of respondents		p-value	Practice (%) – number of respondents		p-value
		Proper	Improper		Proper	Improper		Proper	Improper	
1	Knowledge	Proper	----- --	-----	64.5 80	35.5 55	0.007	90.3 112	9.7 12	0.142
		Improper	----- --	-----	38.9 14	61.1 22	-----	80.6 29	19.4 7	----- --
2	Attitude	Proper	64.5 80	38.9 14	0.007	----- --	----- --	90.4 85	9.6 9	0.326
		Improper	35.5 44	61.1 22	-----	----- --	----- --	84.8 56	15.2 10	----- --

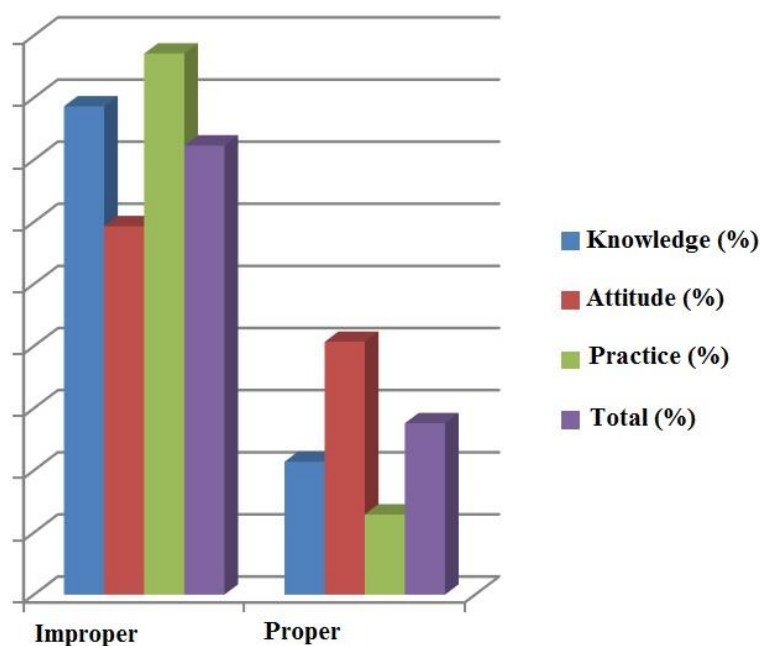


Figure 1. Knowledge, attitude, and practice of family physicians in pediatric vaccination (by percentage)

DISCUSSION

Knowledge, attitude, and practice of female physicians in pediatric vaccination were significantly higher in all cases. In their 2017 study in Brazil, Santos et al. reported a significant relationship between gender and practice of physicians [13]. In Iran, female physicians are more involved in vaccination and family health practices than their male counterparts. They also are more accountable to answer questions raised by family health units and mothers about vaccination.

The significant relationship between the age of participants and scores of knowledge, practice, and attitudes of physicians toward pediatric vaccination indicates that physicians are more efficient in vaccination at higher ages, which can be attributed to their higher experiences in pediatric vaccination. In a 2017 study in Brazil, no significant relationship was reported between age and knowledge, attitude, and practice of the target group [13]. Similarly, Khazaeipour et al. (2010) reported no significant correlation between gender and age with knowledge, attitude, and practice of the target group [14].

A significant relationship was found between physicians' years of experience in medicine with their knowledge and practice, as physicians gain more knowledge and perform better in pediatric vaccination when they acquire more skills and experience in this context. A significant relationship between studying national vaccination guidelines and knowledge and attitudes of physicians about pediatric vaccination, as well as no significant correlation between the study of vaccination guidelines and practice of physicians show that national guidelines on vaccination are not presumably efficient in practical applications.

Of all physicians, 21.4% had higher knowledge, 40.7% had more positive attitudes, and 12.9% were more effective in clinical practice. Khalil et al. (2015) reported a significant relationship between the latest training

course and knowledge of the target group during children vaccination. In conclusion, regular training courses were recommended to avoid a decline in the knowledge of health care providers (HCPs) about vaccination [15]. Given the proper responses of a quarter of physicians to questions on vaccination knowledge, it is crucial to regularly upgrade the knowledge of HCPs to avoid a sharp decline in their knowledge and practice in pediatric vaccination.

CONCLUSION AND RECOMMENDATIONS

High-quality education and increasing the quantity of schooling, as well as studying national guidelines on vaccination are key prerequisites for upgrading the knowledge of family physicians in pediatric vaccination. Training courses need to be regularly organized virtually and in person. Additionally, it is crucial to organize routine pretest-posttest programs and comprehensive exams on pediatric vaccination.

For attitude promotion, it is recommended to provide more useful data on the scope and programs of pediatric vaccination nationally and internationally, and train procedures for vaccination of children of Iran and other countries.

Furthermore, revising educational courses and conducting more monitoring and supervising programs by efficient punitive and incentive instruments are essential for improving the practice of physicians. And ultimately, multicenter trials with larger sample sizes are recommended for future studies.

REFERENCES

1. Sayyari Ali Akbar, Karimi Abdollah, Mahmoodi Soosan, 2015, Immunization program and guideline, approved on February 17 by Iranian National immunization committee
2. Centers for Disease Control and Prevention , author. Achievements in public health, 1900-1999 impact of vaccines universally recommended for children - United States, 1990-1998. MMWR. 1999;48(12):243–248. [PubMed]
3. Afonso N, Kavanagh M, Swanberg S. Improvement in attitudes toward influenza vaccination in medical students following an integrated curricular intervention. *Vaccine*. 2014;32(4):502–506. 16. doi: 10.1016/j.vaccine.2013.11.043. Epub 2013 Nov 21. [PubMed]
4. A Study on Knowledge, Attitude and Practice of Immunization Among Auxiliary Nurse Midwives attending Village Health Nutrition. <https://pglibrarypublichealth.wikispaces.com/file/view/KAP+of+immunization+ANM+on++VHND.docx>. Accessed on Nov. 18th, 2015
5. Keul Pity. In-service training of health workers through distance model. *Nursing Journal of India*, September 2003, LXXXIV (9):201
6. Amrit Bairwa, K.C. Meena, P.P. Gupta, Knowledge, Attitude and Practice of Health Workers in Immunization. *Indian Pediatrics*, January 1995; 32: 107-108
7. Adhikari P, Dhungel S, Shrestha R. Knowledge, attitude and practice (KAP) study regarding facts for life. *Nepal Med Coll J* 2006; 8: 93-6
8. World Health Organization (WHO). *State of the World's Vaccines and Immunization*. 3rd ed. Geneva:WHO. 2009. Google Scholar

9. Stockwell MS, Irigoyen M, Martinez RA, Findley S. How parents' negative experiences at immunization visits affect child immunization status in a community in New York City. *Public Health Rep.* 2011; 126 Suppl 2: 24-32. PubMed | Google Scholar
10. Anastasi D, Di Giuseppe G, Marinelli P, Angelillo IF. Pediatricians knowledge, attitudes, and practices regarding immunizations for infants in Italy. *BMC Public Health.* 2009; 9: 463. PubMed | Google Scholar
11. Moores P, Allan P. Affecting change through continuing education: improving vaccine administration technique. *J Contin Educ Nurs.* 2012; 43: 401-402. PubMed | Google Scholar
12. Madhusudan Swarnkar, Vaseem N Baig, Suresh C Soni, *National Journal of Community Medicine*, 2016, 7, 4
13. Santos C, Clara Ananda Pimentel de Sousa. *Epidemiol.* 2017, vol.26, n.1, pp.133-140. ISSN 1679-4974
14. Zahra Khazaeipour, Neda Ranjbarnovin, Najmesadat Hoseini, et al., Influenza immunization rates, knowledge, attitudes and practices of health care workers in Iran. *J Infect Dev Ctries* 2010; 4(10):636-644
15. El Shazly Hewaida M, Khalil Nora A, Ibrahim Reda A, et al., Knowledge and practice of healthcare providers as regards routine children vaccination in primary healthcare facilities of Quewisna District, Menoufia Governorate, *Menoufia Medical Journal.* 2016, 29, 4, 1018-1025