

Knowledge, Attitude and Practices of adult immunization among resident doctors in Ahmedabad city, Gujarat

Kamleshkumar Jain*, Donald S. Christian**, Haresh Chandwani***, Jayshree N. Tolani****

Abstract :

Introduction: Vaccination in adult life is important not only to prevent deaths but also to improve survival and reduce complications and severity of certain communicable diseases. It is a bitter fact that adult immunization coverage is below even 2 % in most of the countries. Knowledge and attitudes related to adult vaccination among medical professionals should also be emphasized as a starting point.

Objectives: to assess knowledge, attitude and practice of adult immunization among resident doctors and to estimate adult immunization status among the respondents. **Materials & Methods :** A cross sectional study was carried out in resident doctors (junior residents and 1st year residents) of tertiary care medical institutes of Ahmedabad city, Gujarat. On the basis of the eligibility criteria (those who gave consent) 244 participants were finally got enrolled for the present study. Pre-tested questionnaire was use for data collection. **Results:** Mean age of study participant was 26.43 years and mean experience was 1.95 years. Among all adult vaccination status, Hepatitis B vaccination coverage was the highest (75%) followed by Human Papilloma Virus vaccination coverage which was 24.5% (25 out of 102 female). Most of the participant had correct and complete knowledge of vaccines named hepatitis B (82.4%), Rabies 187 (76.6%), Hepatitis A (70.9%), dPT/dT(69.7%) and Pneumococcal (66.4%). **Conclusion:** Hepatitis B was found to be the “best known, best practiced” adult vaccine thus far. There were wide variations with regards to attitude and practices of different adult vaccines among the respondents.

Introduction :

Even in the era of modern technologies and advancements of chemotherapy, one cannot undermine the burden of communicable diseases.

⁽¹⁾ The role of vaccines in adulthood is proven fact and there are certain vaccine preventable diseases which could prove grave if not prevented in adults as well. These include conditions like Meningococcal meningitis, Hepatitis B, Tetanus,

Typhoid, Human Papilloma Virus, Rabies and so on. There are certain diseases which behave in different manner while affecting the adult, in contrast to the childhood counterpart. Pertussis, Pneumonia, Influenza and Herpes Zoster are some of the examples. ⁽²⁾

It is also estimated that the ageing population would cross a proportion of about 12% in India by 2026, and it will pose a serious burden from mortality and morbidity attributed by communicable diseases. ⁽³⁾ So far, the focus is given to childhood vaccination by the government and well as the international health agencies like the WHO and UNICEF. ^(4, 5) In Africa, it is seen that due to high vaccination coverage among children,

* Assistant Professor,

** Associate Professor,

**** Bio-statistician cum Tutor, Community Medicine Department, GCS Medical College, Hospital & Research Centre, Ahmedabad

*** Public Health Specialist- Training, Public Health Foundation of India, Gurugram, Haryana

Correspondence : Dr Donald S Christian

E-mail : donald_christian2002@yahoo.com

the adolescents in those countries suffer suboptimal immunity levels for some vaccine-preventable diseases.⁽⁶⁾

One must also not ignore the scientific bases of adult immunization. The antigens like Pertusis and Tetanus vanishes over the period of time and makes the adult more vulnerable to the disease.^(7, 8)

It is surprising to know the fact that adult immunization coverage is as low as 2% even in most developed countries like the United States.⁽⁹⁾

Countries like India, therefore must realize that adult vaccination must form an integral part of cost-effective primary prevention strategies for communicable diseases. It is therefore important to assess the current knowledge and practices of adult immunization among the health professionals like doctors and nurses. However, the cost-effectiveness of the vaccines must be emphasized as most of these vaccines are not cheap. Therefore, characteristics such as age, prior vaccinations, health conditions, lifestyle, occupation, and travel shall be kept as the basis for adult immunization.⁽¹⁾

The lack of data on communicable diseases in India as well as the fact of the poor coverage of vaccines for adults, the Expert Group on Immunization recommended collection of epidemiological data pertaining to the efficacy as well as adequacy of adult immunization in India.⁽¹⁰⁾

They also suggested that the guidelines for adult immunization should be reviewed every three year. Nonetheless, the most critical point here is to save millions of adult lives through proper routine immunization schedule across the country. It would be better to know the knowledge and practices

Objectives:

- To assess knowledge, attitude and practice of adult immunization among resident doctors.

- To estimate adult immunization status among the respondents.

Materials & Methods:

A cross sectional study was carried out in resident doctors (junior residents and 1st year residents) of tertiary care medical institutes of Ahmedabad city, Gujarat. Since it was a KAP study, equal proportions (n=50) of the participants were selected for the study from the five major medical institutes of the city. Within one institute, participants were selected through systematic random sampling till the desired sample size (50 per institute) was achieved. On the basis of the eligibility criteria (those who gave consent) 244 participants were finally got enrolled for the present study. Pre-tested questionnaire was use for data collection. The questionnaire was used to obtain their basic information for various adult vaccines as well as to check their knowledge, attitude and practice regarding adult vaccination. Correct knowledge regarding vaccination means he/she had answered correctly all questionnaires. In present study, Likert scale was used to know about participants' attitude. A total of 15 vaccines namely Pneumococcal, Cholera, H. Influenza B, Japanese Encephalitis, Varicella, MMR, Rabies, Influenza, Typhoid, Hepatitis A, Hepatitis B, Meningococcal and Zoster were included. In addition to these vaccines, Human Papilloma Virus vaccine was included for female respondents. The data were analysed by Microsoft excel and other statistical software. The study protocol was approved by the Institutional Ethics Committee before data collection.

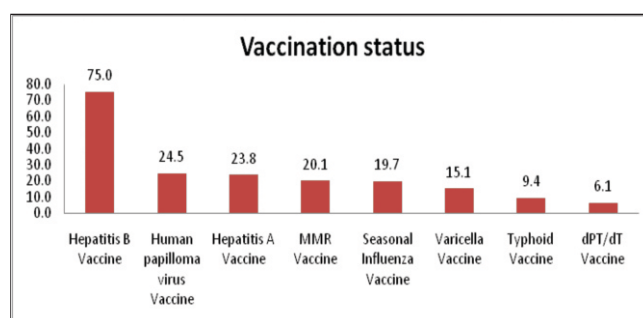
Results:

In present study, there were 142 males and 102 females out of a total of 244 participants. Mean age of study participant was 26.43 years (with SD=1.81 years) and mean experience was 1.95

Table 1: Distribution of correct knowledge of vaccines among the respondents (n=244)

Vaccine	All	Type of vaccine	Route of vaccine	Site of vaccine	Doses of vaccine
	Correct response n(%)	Correct response n(%)	Correct response n(%)	Correct response n(%)	Correct response n(%)
Hep B	201 (82.4)	225(92.4)	225(92.4)	234(96.0)	222(90.8)
Rabies	187 (76.6)	244(100.0)	229 (94.0)	234(96.0)	192(78.8)
Hep A	173 (70.9)	185(76.0)	224(92)	221(90.5)	184(75.6)
dPT/dT	170 (69.7)	211(86.8)	212(86.8)	207(84.8)	171(70.0)
Pneumococcal	162(66.4)	192(78.8)	229(94)	186(76.4)	177(72.4)
Hib	96 (39.3)	232(95.2)	148(60.8)	146(59.8)	96(39.2)
Typhoid	82 (33.6)	224(91.6)	225(92.4)	225(92.4)	82(33.6)
JE	80 (32.8)	220(90.0)	143(58.8)	143(58.8)	88(36.0)
Cholera	75 (30.7)	215(88.0)	184(75.6)	184(75.6)	82(33.6)
Varicella	65 (26.6)	71(29.2)	106(43.6)	106(43.6)	146(60.0)
HPV	44 (18.0)	46(18.8)	108(44.4)	201(82.4)	79(32.4)
Seasonal Flu	41 (16.8)	67(27.6)	70(28.8)	96(39.2)	44(18.0)
Meningococcal	36 (14.8)	36(14.8)	150(61.6)	208(85.2)	97(39.6)
MMR	18 (7.4)	125(51.2)	20(8.0)	20(8.0)	23(9.6)
Zoster	10 (4.1)	11(4.4)	14(5.6)	14(5.6)	19(7.6)

years (with SD=1.47 years). Among all adult vaccination status, Hepatitis B vaccination coverage was the highest (75%) followed by Human papilloma Virus vaccination coverage which was 24.5% (25 out of 102 Female). Rest of the vaccine coverage was in descending pattern Hepatitis A vaccine (23.8%), MMR (20.1%), Seasonal Influenza vaccine (19.7%), Varicella vaccine (n=186) (15.1%), Typhoid vaccine (9.4%), Diphtheria, Pertusis and Tetanus vaccine (6.1%).

Fig. 1: Status of individual vaccine coverage among the respondents (in percentage, N=244)

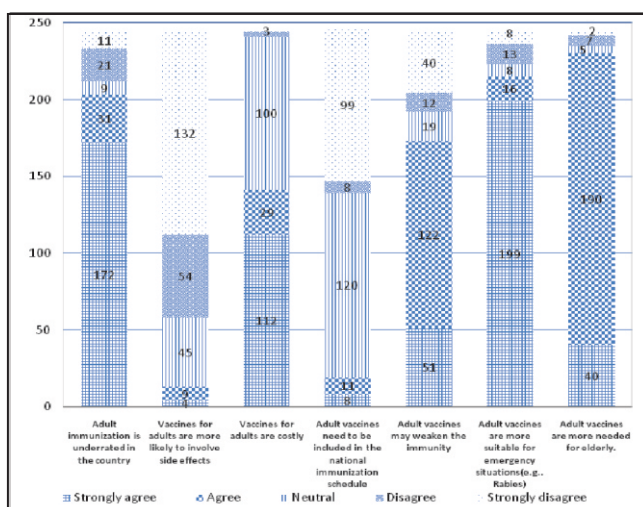
Most of the participant had correct and complete knowledge of vaccines named hepatitis B(82.4%), Rabies 187 (76.6%) , Hepatitis A (70.9%) , dPT/dT(69.7%) and Pneumococcal (66.4%). Knowledge of participants about remaining vaccine was less than 50% and very few knew about MMR and Zoster. All of them gave correct response about type of vaccination for Rabies. Only 11 (4%) participants had correct knowledge about type of vaccination for zoster vaccine. >75% of them were aware about type of vaccination for H.influenzae B, Hepatitis B, Typhoid, JE, Cholera, dPT, Pneumococcal, and Hepatitis A. Most of them (94%) gave correct response about route of vaccination for Rabies and Pneumococcal. Only 14 (5.6%) participants had correct knowledge about route of vaccination for zoster vaccine. >75% of them were aware about route of vaccination for Hepatitis B, Typhoid, JE, Cholera, DPT and Hepatitis A. Most of the participant had correct knowledge about site of vaccine named hepatitis B(96%), Rabies (96%), Typhoid (92.4%) and Hepatitis A (90.5%). knowledge of participant regarding dose of vaccination for Hepatitis B was highest (90.8%)

Majority of them (172 out of 244) participants were strongly agree that adult vaccination is underrated in our country. Most of them (199/244) were strongly agree that adult vaccine is more suitable for emergency like rabies. When enquire about affordability issue of adult vaccination whether adult vaccination is costly or not, most of them were strongly agreed that adult vaccination is costly. Most of them either strongly disagree or neutral regarding adult vaccination to be a part of national immunization Schedule. Most of them strongly disagree regarding side effect of vaccine.

Discussion:

The present study determines the levels of knowledge and attitudes regarding adult vaccines among Residents of tertiary medical institutes of Ahmedabad city. The vaccines status was also determined for individual vaccines to assess the practice among the respondents. It was seen the highest proportion of coverage (75%) was seen for Hepatitis B in the present study, which is comparable to the study done by Riaz S et al among medical students of Lahore, Pakistan where the coverage of Hepatitis B vaccine was 73.8%.⁽¹¹⁾ The coverage of few other vaccines like Varicella, Hepatitis A etc was also similar. However, the results of vaccine coverage were not comparable to the research study done among pharmacy students of Mumbai, which showed the coverage data as Hepatitis B (55%), HPV (5%), MMR (66%) and Varicella (30%).⁽¹²⁾ This difference might be due to the difference in education status as well as lower sample size (N=149). In the present study, the attitudes about type and mode of administration of major adult vaccines like Hepatitis B, Rabies, Hepatitis A, Pneumococcal, dT/dPT etc were found to be more than 70 %. This finding is comparable to the study done by

Fig. 2: Frequency distributions of respondents about attitude towards adult vaccines



Buxton J et al among the physicians of British Columbia, Canada where the proportions of correct responses for vaccine type and vaccine administration was found to be 65.4% and 72.9% respectively. ⁽¹³⁾ It is to be noted here that proportions for correct knowledge for the newer vaccines like MMR, Seasonal flu, Meningococcal and HPV was found to be below 50% in the present study. Characteristics that might contribute to low vaccination coverage among adult populations might include lack of vaccine requirements for adults, the cost of stocking vaccines and lack of health insurance and limited funding for programs to vaccinate uninsured adults. ^(14, 15, 16)

The present study has also identified the possible attitudes because of which the adult immunization could be low among the respondents. The beliefs that “adult vaccine are more needed by the elderly “was agreed by more than 95% of the respondents. In a country like us, this reason could become a significant barrier to adult vaccination programs, as the scenario for general public could be worse as compared to the medical respondents of the present study. It was also surprising to know that more than 80% of the respondents considered adult vaccines to be preferable for emergency situations. This attitude might be the reflection of the orthodox beliefs of knowing vaccines against Rabies and Tetanus to be given to adults most of the time. This is probable a reflection of the age old practices of administering only these two vaccines to adult populations by and large. Even among the resident doctors with medical knowledge about the communicable diseases, it was seen that more than 70% of the respondents believed that adult vaccines could weaken the immunity. Contrary to several studies ^(17,18) showing higher education levels are associated with better knowledge and attitudes for

adult vaccines, the findings from the present study indicates that even among medical professionals, adverse attitudes cannot be denied.

Conclusion:

The present study shows that knowledge and practices vary widely for different adult vaccines even with similarly higher educational backgrounds among the medical professionals. Hepatitis B was found to be the “best known, best practiced” adult vaccine thus far. The respondents showed equally higher/lower knowledge related to individual adult vaccines and their administration, by and large. The attitudes of the respondents were also ascertained for adult vaccines in general. It was seen that there is good proportions of false beliefs prevalent for the use of adult vaccines in most of these medical professionals.

Recommendations:

The importance of adult vaccines needs to be emphasized in the health system. The issue needs to be taken care of by various stake holders including policy makers, mass media, practitioners and economist. Many misconceptions, related to the use of adult vaccines, are needed to be clarified before introduction of any formal adult immunization program. It would be also appropriate to address each vaccine separately, as the pros and cons (cost, adverse events, need of vaccine etc) differ widely among individual types of adult vaccines.

References:

1. Sharadha K. The Grown-ups Vaccines. Published: 05th February 2014. Available from <http://www.newindianexpress.com/cities/bangalore/The-Grown-ups%E2%80%99-Vaccines/2014/02/05/article2038944.ece>.
2. Sharma OP, RGUHS Med Sciences, October 2016 / Vol. - 6 / Issue-4 160.

3. Sharma OP, Indian Recommendations for Vaccination in Older Adults - 2015. Pneumococcal Vaccination; New Delhi 2015,11-27.
4. Larry M, Maddour MD. Whole virus H5N1 vaccine trial. *Journal Watch Infectious Diseases*. (News Letter), June 11, 2008.
5. Vijayakumar V, Hari R, Parthiban R, Mehta J, Thyagarajan SP. Evaluation of immunogenicity and safety of Genevac B: a new recombinant hepatitis B vaccine in comparison with Engerix B and Shanvac B in healthy adults. *Indian J Med Microbiol* 2004; 22:34-8; PMID:17642683 [PubMed].
6. Zipursky S, Wiysonge CS, Hussey G. Knowledge and attitudes towards vaccines and immunization among adolescents in South Africa. *Hum Vaccin*. 2010; 6: 455–461. doi: 10.4161/hv.6.6.11660.[PubMed][Cross Ref].
7. Lee G, LeBaron C, Murphy T, Lett S, Schauer S, Lieu T. Pertussis in adolescents and adults: should we vaccinate? *Pediatrics*. 2005;115:1675. doi: 10.1542/peds.2004-2509. [PubMed] [Cross Ref].
8. Mackroth M, Irwin K, Vandelaer J, Hombach J, Eckert L. Immunizing school-age children and adolescents: experience from low- and middle-income countries. *Vaccine*. 2010;28: 1138–1147. doi: 10.1016/j.vaccine.2009.11.008. [PubMed][Cross Ref].
9. Ramesh Verma, Pardeep Khanna, & Suraj Chawla, *Hum Vaccin Immunother*. 2015 Sep; 11(9): 2180–2182.
10. Guidelines API. Executive Summary The Association of Physicians of India Evidence-Based Clinical Practice Guidelines on Adult Immunization. Expert Group of the Association of Physicians of India on Adult Immunization in India JAPI. 2009; 57:345-56. [PubMed].
11. Riaz S, Arif M, Daud S, Immunization in Medical Students: Knowledge and Practice, *Pakistan Journal of Medical and Health Sciences*, December 2017; 11(4):1501-1504.
12. Limaye D, Limaye V and Fortwengel G: A study to assess the vaccination coverage of University students in Mumbai, India. *Int J Pharm Sci Res* 2017; 8(6): 2667-76. doi: 10.13040/IJPSR.0975-8232; 8(6).2667-76.
13. Jane A. Buxton, Cheryl C. McIntyre, Andrew W. Tu, Brennan D. Eadie, Valencia P. Remple, Beth Halperin, Karen L. Pielak, Who Knows More About Immunization, *Can Fam Physician*. 2013 Nov; 59(11): e514-e521.
14. Williams WW, Lu PJ, O'Halloran A, et al. Centers for Disease Control and Prevention (CDC) Surveillance of Vaccination Coverage Among Adult Populations — United States, 2014. *MMWR*. 2016;65(1):1–36. [PubMed] [Google Scholar].
15. Lu PJ, O'Halloran A, Williams WW. Impact of health insurance status on vaccination coverage among adult populations—United States, 2012. *Am J Prev Med*. 2015;48(6):647–61. [PMC free article][PubMed][Google Scholar].
16. Hurley LP, Bridges CB, Harpaz R, et al. U.S. physicians' perspective of adult vaccine delivery. *Ann Intern Med*. 2014;160:161–70. [PMC free article][PubMed][Google Scholar].
17. Jain N, Euler GL, Shefer A, Lu PJ, Yankey D, Markowitz L. Human papillomavirus (HPV) awareness and vaccination initiation among women in the United States, National Immunization Survey-Adult 2007. *Prev Med*. 2009;48(5):426–31. [PubMed] [Google Scholar].
18. Javed S, Javed F, Mays RM, Tying SK. Herpes zoster vaccine awareness among people \geq 50 years of age and its implications on immunization. *Dermatol Online J*. 2012;18(8):2. [PubMed][Google Scholar].