WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.453
Volume 13, Issue 12, 1038-1047. Research Article ISSN 2277–7105

KNOWLEDGE, ATTITUDE AND PRACTICE OF VACCINATION AMONG MEDICAL STUDENTS IN UTTAR PRADESH, INDIA

Dr. Pooja Agrawal*, Dr. Virendra Kushwaha, Dr. Harsh Vekaria, Dr. Pradeep Kumar, Dr. B. K. Shoraisham and Dr. Arka Das

Department of Pharmacology, GSVM Medical College, Kanpur.

Article Received on
03 May 2024,

Revised on 24 May 2024,
Accepted on 13 June 2024

DOI: 10.20959/wjpr202412-32379

***Corresponding Author**
Dr. Pooja Agrawal
Department of Pharmacology, GSVM Medical College, Kanpur.

ABSTRACT

Background: Knowledge of vaccination among medical professionals plays an important role and it is a must for their academics. However, there are gaps in knowledge, attitude, and practice (KAP) regarding immunization and the National immunization program. This study aimed to assess the level of knowledge of vaccination, attitudes, and practices among medical students at a teaching institute. **Methods:** A cross-sectional study was conducted among the medical students at GSVM Medical College, Kanpur, Uttar Pradesh. A total of 178 students participated in the pretest and 128 in the post-test included. **Results:** Out of a total of 250 students, 178 (71.2%) responded in the pre-test while 128(51.2%) students gave responses during the post-test. Most of the students heard about the vaccination and the most common source of information was academic books (79.2%). Most of the study participants have good knowledge but their attitude & practices towards vaccination is low. **Conclusions:** The findings revealed that most of the study participants have good knowledge but attitudes & practices towards vaccination are low and diverse. It reflects the need for the integration of teaching with immunization hands-on training sessions and workshops into the curriculum is believed to be the most effective teaching-learning method.

KEYWORDS: Knowledge, Attitude, Practices, Vaccination, Medical students.

INTRODUCTION

The government of India has launched a number of national health programs to control communicable diseases and to improve maternal and child health.[1] National immunization

program forms an indispensable measure to combat vaccine-preventable diseases in children under 5 years and is an essential part of Maternal and Child Health program in India.[2]

Despite considerable progress in the past few years on immunization coverage National Family Health Survey (NFHS-4) data show that only 62% of children aged 12–23 months received at least BCG, measles, and three doses each of polio and DPT for year 2015–2016 in India.[3] Only 21% of pregnant women received full antenatal care and only 30% of women consumed iron folic acid for 100 days or more during pregnancy. Financial assistance under the Janani Suraksha Yojana (JSY) for institutional delivery could be utilized by only 36.4% of women.[4] These wide gaps in the utilization of immunization and mother and child health services indicate the need for motivation and mobilization of targeted beneficiaries.[5]

Medical professionals could play a crucial role in health education and promotion regarding the benefits of immunization to target targeted beneficiaries. It has been shown that physicians' attitudes toward vaccines can directly impact patients' decision to accept or reject immunization.[6] Types of vaccines that can be developed, manufactured and administered are.[7]

- Live Attenuated Vaccines
- Inactivated Vaccines
- Recombinant Vaccines
- Polysaccharide Vaccines
- Toxoid Vaccines
- Viral Vector Vaccines
- Nucleic Acid Vaccines

For this, knowledge of vaccination among medical professionals plays an important role and it is a must for their academics. However, there are gaps in knowledge, attitude, and practice (KAP) regarding immunization and the National immunization program. Keeping this fact in mind this study was planned with the aim of assessing the level of knowledge, attitudes, and practices of vaccination among medical students at a teaching institute with the following objectives.

- To determine the knowledge of medical students regarding vaccination at a tertiary-level center, GSVM Medical College in Kanpur, Uttar Pradesh.
- To determine the attitude & practices regarding vaccination & its program.

MATERIALS AND METHODS

A descriptive, cross-sectional study with above-mentioned objectives was planned in the Department of Pharmacology, GSVM Medical College in Kanpur, Uttar Pradesh. This study was conducted from August 2023 to September 2023. All second-year MBBS medical students in the institute were included in the study. The verbal informed consent was obtained from respondents before including them in the study. Those who declined to give consent were excluded from the study.

A total of 178 students participated in the pretest and in the post-test, 128 students were interviewed using a pre-validated structured questionnaire containing section A of 8 questions on knowledge, section B of 3 questions on attitude, and section C on 3 questions on practices respectively.

The Pre-test and post-test response data were collected by Google form. Details regarding basic particulars like gender and age were also noted. For illustrative purposes, the domain (KAP) scores were transformed into percentages and assessed along with the statistical analysis.

RESULTS

Out of a total of 250 students, 178 (71.2%) responded in pre -test while 128(51.2%) students gave responses during post-test. **[Figure 1]**

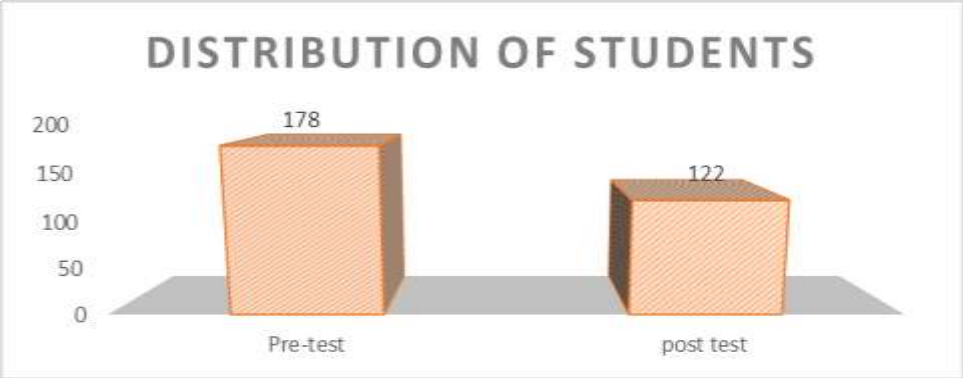

Figure 1: Distribution of students in pre-test & post test.

Distribution of Gender & Age of students during Pre-test & Post test has been shown Table 1 & Figure 2 & 3 respectively.

Table 1: Distribution of students according to Age & Gender.

Particulars	Category	Pre-test (n=178)	Post test (n=128)
Gender	Male	99	62
	Female	79	60
Age Group	19-20	70	49
	21-22	66	45
	23-24	30	18
	25 and above	12	10

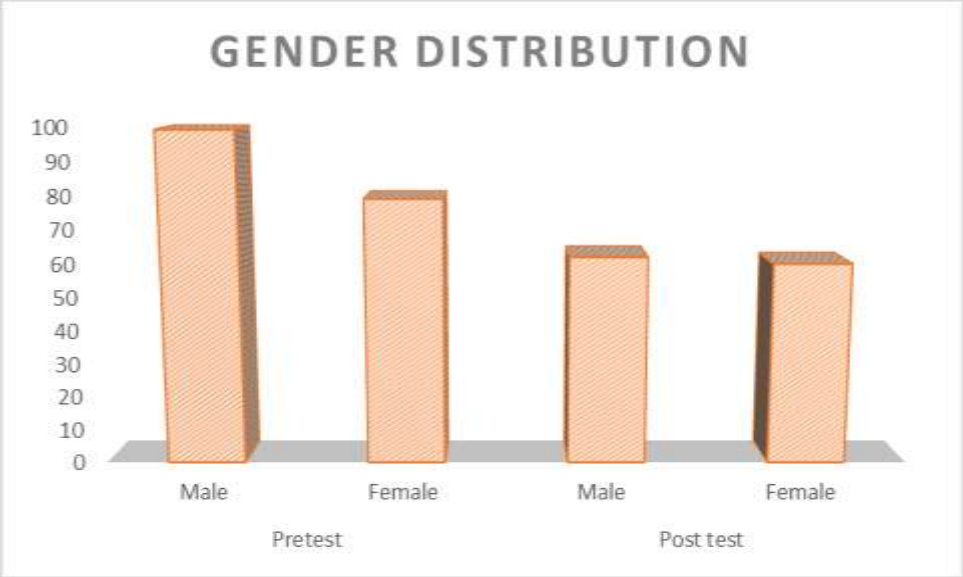

Figure 2: Distribution of students according to Gender.

Figure 3: Distribution of students according to Age.

Most of the students heard about the vaccination and the most common source of information was academic books (79.2%) followed by 14% by the internet in the pretest and in the posttest, the commonest source of information was academic books (73.5%) followed by the internet in 18.4%. Total 93.3% of students knew about the National immunization schedule in the pretest before taking the class while 95.9% responded that they knew about the National immunization schedule in the post-test. [Table 2, Figure 4]

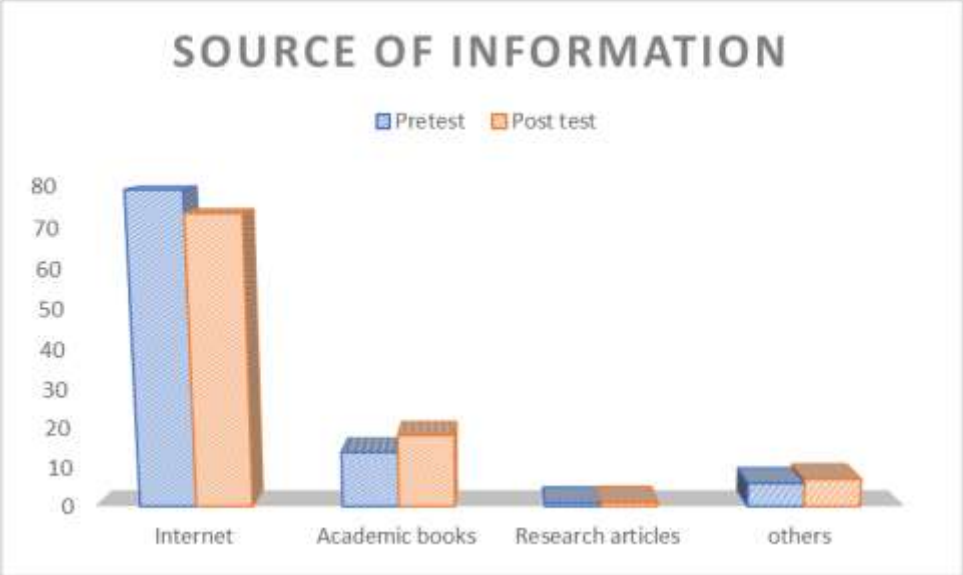

Figure 4: Source of information of Vaccination.

Table 2: Students Response on Knowledge Based Questions about Vaccination in Pre-test & Post Test.

No	Particulars	Pretest		Post-test	
		Yes	No	Yes	No
1	Have you heard about vaccines and their types?	100	0	100	0
2	Do you know about the vaccination Schedule?	93.3	6.7	95.9	4.1
3	Immunization is an important and effective way to protect humans from types of infectious diseases.	79	21	82	18
4	Which of the following statements is incorrect about the vaccine development process?	61.9	38.1	65	35
5	The first scientifically approved vaccine was smallpox.	76.4	23.6	85.7	14.3
6	The first company which that received the emergency authorization to distribute the COVID vaccine was Pfizer-BioNtech.	57.3	42.7	62.2	37.8
7	Spanish Flu (Influenza) was first reported in 1918, when was the vaccine discovered?	74.2	25.8	85.8	14.2
8	The BCG vaccine used for the prevention of TB is derived from	45.5	54.5	48	52

Table 3: Students Response on Attitude Based Questions about Vaccination in Pre-test & Post Test.

Question No	Particulars	Pretest	Post-test
1	**Do you think the National Pulse polio program has decreased the incidence of polio in India?**		
	Strongly agree	71.3	73.5
	agree	24.2	25.5
	disagree	3.3	1
	Strongly disagree	1.2	0
2	**Do you think timely vaccines can prevent communicable diseases?**		
	Strongly agree	55.6	56.1
	agree	42.7	42.9
	disagree	1	1
	Strongly disagree	0.7	0
3	**According to you National Immunisation Program important & and effective?**		
	Strongly agree	70.2	69.4
	agree	27.5	30.6
	disagree	2	0
	Strongly disagree	0.3	0

Table 4: Students Response on Practice Based Questions about Vaccination in Pre-test & Post Test.

Question No	Particulars	Pretest	Post-test
1	**Will you use your vaccine-related knowledge in clinical practice?**		
	Yes	92.1	95.9
	No	1.9	0.1
	May be	6	4
2	**Will you promote and encourage parents to follow the National Immunization Schedule for their child?**		
	Yes	94.9	99
	No	2.6	0
	May be	2.5	1
3	**Will you participate in a National Health Program related to vaccination in your medical practice?**		
	Yes	93.3	95.9
	No	2.5	1
	May be	4.2	3.1

Overall, the vaccination knowledge, attitude, and practice sub domain among the studied students, the average scores were 72.20%, 58.45%, and 36.74%, respectively in pre-test & 86.20%, 64.54%, and 56.43% in post-test. [Table 5]

Table 5: Average scores of Sub domains (Knowledge, attitude & Practice) among students.

DOMAIN	PRETEST	POST TEST
KNOWLEDGE	72.2%	86.2%
ATTITUTE	58.45%	64.54%
PRACTICE	36.74%	56.43%

Most of the study participants have good knowledge but attitude & practices towards vaccination is low. Girls students had higher scores for the knowledge and attitude domains and their subsections whereas boys students had higher scores for the practice domain. A significant difference between the two genders was observed only for attitude scores which were significantly higher in females as compared to that in males. For all three domains and their subsections, the mean scores were higher among those aged 21–22 years as compared to those aged 23–24 years and 19-20 years.

Overall practice scores were much lower than knowledge and attitude of study subjects among both genders. A significant correlation was observed between and practice scores & gender.

DISCUSSION

This descriptive cross-sectional study was conducted among second-year MBBS medical students GSVM Medical College in Kanpur, Uttar Pradesh for assessment of level of knowledge, attitudes, and practices of vaccination.

Our study was unique as it considered knowledge, attitude and practices domain in comparison to previous studies as **Diwakar Thiagarajan et al.**[8] whereas only knowledge and attitude domain was considered and only vaccination and knowledge of Maternal and child program was considered.

In present study, most of the study students have good knowledge but attitude & practices towards vaccination is low. In the knowledge domain, the possible reasons for a better performance could be the inclusion of immunization in their core curriculum and recent memory from classes.

Similar to our study they have also had similar results and had concluded that as evidenced by the rise in knowledge levels of the medical students, vaccine guidelines now available in their four core education years.[9, 10]

In present study students have positive attitude towards vaccination which would lead to increased take-up and utilization of immunization which is confirmed by study of **Shrestha et al.**[10] and **Laing et al.**[11] While **Sumita Sharma et al.**[12] revealed very poor knowledge among study participants and more than 30 % students had shown low attitude towards immunization. There were no such association between knowledge and attitude regarding immunization.

In our study the overall vaccination knowledge, attitude, and practice sub domain among the studied students most of the study participants have good knowledge but attitude & practices towards vaccination is low. Similar **Lily Singh et al.**[9] study revealed wide gaps in knowledge and practices of medical students in relation to immunization and maternal and child health programs. The significance of modification in educational program and syllabus of the health professionals to fill the possible gaps in their knowledge and perturbing attitudes and behaviors regarding immunization has been in Vaxed Survey.[13]

The difference in the KAP scores among medical students in this study indicates the need to incorporate knowledge and attitude with adequate exposure. This highlights the pressing need to advocate competency-based medical education which is essential to hone the skills needed for vaccination to achieve better achievement of goals envisaged by immunization and national maternal and child health program in India.[14] Similar study conducted by **Cvzetcovik et al.**[15] depicted with highly significant difference between the knowledge score and attitude towards immunization.

In our study most of the students heard about the vaccination and the most common source of information was academic books (79.2%) followed by 14% by the internet in the pretest and in the posttest, the commonest source of information was academic books (73.5%) followed by the internet in 18.4%.

But the study conducted by **Jones et al.**[16] showed, the most common information source of vaccination was healthcare provider (91.7 %), followed by vaccine information statements (printed materials from healthcare providers 84.0 %) and parents/friends (53.8 %). Similar results regarding vaccine information sources were obtained from past research conducted by **Tomboloni et al.**[17] where they found around 41.6 % diploma holding healthcare workers got information about immunization through internet and from pediatricians. Pharmacogenomics explores how genetic variations influence individual responses to

vaccines, aiding in the development of personalized vaccination strategies. It is a good initiative done by NMC to include these topics in undergraduate curriculum but there is need to conduct more CMEs, symposium, workshops in medical colleges.[18]

CONCLUSION

The findings revealed that most of the study participants have good knowledge but attitudes & practices towards vaccination are low and diverse. After the session, all three domains (knowledge, attitude, and practice) showed significantly improved. It reflects the need for the integration of teaching with immunization hands on training sessions and workshops into the NMC curriculum is believed to be the most effective teaching-learning method.

REFERENCES

1. Universal Health Coverage. Factsheet. Available from: https:// www.who.int/news-room/fact-sheets/detail/universal-health-coverage-(uhc) [Last accessed on 2023 Oct 24].
2. Park K. Park's Textbook of Preventive and Social Medicine. 25th ed. Banarsidas: Bhanot Publishers, 2019; 475-503.
3. Immunization Handbook for Medical authors. Department of Health and Family Welfare, Government of India; 2017, Available from: http://www.nihfw.org/pdf/nchrcpublications/ immunihandbook.pdf [Last accessed on 2023 Oct 22].
4. National Family Health Survey of India NFHS-4 on India Key Indicators. Available from: http://rchiips.org/nfhs/pdf/NFHS4/ India.pdf [Last accessed on 2023 Oct 24].
5. Abramson ZH and Levi O. Influenza vaccination among primary healthcare workers. Vaccine, 2008; 26(20): 2482-2489. http://doi.org/10.1016/j.vaccine.2008.03.011
6. Dybsand LL, Hall KJ and Carson PJ. Immunization attitudes, opinions, and knowledge of healthcare professional students at two Midwestern universities in the United States. BMC Med Educ, 2019; 19(1): 242. http://doi.org/10.1186/s12909-019-1678-8.
7. www.hhs.gov [INTERNET]. US Department of Health and Human Services; 2024[Updated December 22, 2022. Available from https://www.hhs.gov/immunization/ basics/types/index.html
8. Diwakar Thiagarajan, Vichithra Mohandoss, and M. Benjamin Sagayaraj, Knowledge and Attitude about Immunization Recommended by Government of India and Indian Academy of Pediatrics among Medical Students, Journal of Pharmaceutical Research International, 33(48B): 115-120.

9. Lily Singh**1**, Pranjali Saxena**2**, Faridi MMA**;** Knowledge, attitude, and practice of medical students regarding immunization and National Maternal and Child Health program in India; Asian Journal of Medical Sciences, 2022; 13(1): 52-59.
10. Berera D, Thompson KM. Medical Student knowledge, attitudes, and practices regarding immunization. J Vaccines Vaccin, 2015; 6(268): 2.
11. Shrestha R, Chhettri P, Bhusal CK, Ruchal R, Shrestha S, Shrestha B. Knowledge, Attitude and Practice Regarding Immunization among Medical Students. Journal of Universal College of Medical Sciences, 2019 Jul 2; 7(1): 46-50.
12. Sumita Sharma, Lipilekha Patnaik & Sumitra Pattnai, Knowledge and attitude towards Immunization among newly admitted Mbbs Students in a Medical College of Eastern India; International Journal of General Medicine and Pharmacy (IJGMP), Jan-Jun 2021; 10(1): 87–96.
13. Pelly LP, Macdougall DM, Halperin BA, Strang RA, Bowles SK, Baxendale DM, et al. THE VAXED PROJECT: An assessment of immunization education in Canadian health professional programs. BMC Med Educ, 2010; 10: 86.
14. Dankner R, Gabbay U, Leibovici L, Sadeh M and Sadetzki S. Implementation of a competency-based medical education approach in public health and epidemiology training of medical students. Isr J Health Policy Res, 2018; 7(1): 13.
15. Riccò M, Vezzosi I, Gualerzi G, Signorelli C. Knowledge, attitudes and practices (KAP) towards vaccinations in the school settings: an explorative survey. J Prev Med Hyg, 2017; 58(4): E266-E278.
16. Jones AM, Omer SB, Bednarczyk RA, Halsey NA, Moulton LH, Salmon DA. Parents' Source of Vaccine Information and Impact on Vaccine Attitudes, Beliefs, and Nonmedical Exemptions. Adv Prev Med, 2012; 2012: 932741.
17. Tomboloni C, Tersigni C, De Martino M, Dini D, González-López JR, Festini F, et al. Knowledge, attitude anddisinformation regarding vaccination and immunization practices among healthcare workers of a third-level paediatric hospital. Ital J Pediatr, 2019; 45(1): 104.
18. Agarwal P, Kushwaha V, Shukla V. Questionnaire Based Assessment on Pharmacogenomics And Pharmacoeconomic in Medical Undergraduates of Tertiary Care Teaching Hospital. Indian J Appl Res, 2022; 12(8).