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Research Article

Knowledge, Attitude and Practice (KAP) Towards COVID-19 Vaccination among 15–17 Year Old Beneficiaries of COVID Vaccination Centre (CVC) of a Tertiary Hospital in New Delhi

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A B S T R A C T

Introduction: India started its nationwide vaccination campaign on 16th January 2021 for the vulnerable population and for the 15 years to 17 Years olds on 3rd January 2022. The purpose of this study is to understand the adolescent's perceptions of COVID-19 vaccination, preferences, willingness, concerns.

Methodology: It was a questionnaire-based cross-sectional study using a semi-structured, self-administered questionnaire which was used to assess the socio-demographic profile, knowledge and attitude regarding COVID-19 infection and vaccines. The study subjects included the first thousand COVID vaccine adolescent recipients at a COVID vaccination center in VMMC and Safdarjung hospital, New Delhi.

Results: A very positive attitude was noticed regarding the vaccine as almost all (99.6%) of the participants admitted to the willingness to recommend the COVID-19 vaccination to others as well. Almost all (99.47%) correctly answered the questions about COVID-19 vaccines of the national program.

Conclusion: A high proportion (99.5%) of the participants had knowledge about COVID – 19 vaccines but 60% were unaware about the possibility of breakthrough infection. This can be targeted while educating adolescents regarding vaccination. Also, most of the adolescents were influenced by the social media and therefore it can be used to launch health campaigns online to disseminate knowledge especially through the social media to improve the reach to the adolescent age group.

Keywords: COVID-19, Vaccination, Adolescents, Pandemic

Introduction

Coronavirus Disease (COVID-19), declared as a pandemic on March 11, 2020 became an unprecedented global health crisis affecting all sections of the society.[1] At the time of writing (10th May 2022), this pandemic had affected 223 countries, with over 518.05 million confirmed cases and over 6 million deaths recorded globally.[2] The first COVID-19 case in India was reported on 29th January 2020 and since then, the numbers of cases rose to a colossal total. As of 10th May 2022, the country has recorded 4,31,07,659 positive cases of COVID-19 and 5,22,745 deaths.[3]

Most of the countries, including India, have achieved significant immunization coverage among adults.[4] The role of vaccination for adolescents took centre stage in many countries, as older and more vulnerable populations have been vaccinated and severe illness is largely a vaccine-preventable outcome. India started its nationwide vaccination campaign on January 16, 2021 for the vulnerable population and for the 15 years to 17 Years olds on 3rd January 2022.

However, there is a dearth of studies and reports on this age group's perceptions of COVID-19 vaccination in India as far as preferences, willingness, concerns go. Thus, the purpose of this study is to share results from one of the earliest and largest assessments on COVID-19 vaccination willingness and perspectives of this age group.

Methodology

It was a questionnaire-based, cross-sectional study. A semi-structured, self-administered questionnaire was used to assess the socio-demographic profile, knowledge and attitude regarding COVID-19 infection and vaccines. A section regarding use of the digital mode was added to the profile as it was felt relevant to the age group.

Knowledge about COVID vaccines was assessed through questions regarding names of vaccines approved in the country, if vaccine was mandatory, when immunity developed after vaccination, minimum time period between two doses, duration before the precaution dose and the vaccine used for it. If all the answers were correct, the participant was reported as having sound knowledge about COVID-19 vaccines.

The study subjects included the first thousand COVID vaccine adolescent recipients at COVID vaccination center in VMMC and Safdarjung hospital, New Delhi. Consent was obtained from the parents/ guardians of all the study participants on their behalf.

Approval from the Institutional Ethics Committee was obtained before the commencement of the study.

Responses from a total of 1000 individuals were collected. Out of 1000 responses, 53 were found to be incomplete during scrutiny and hence removed from data analysis. Data was entered into the MS Excel sheet and the data was cleaned. Data was analyzed using SPSS 26 statistical software

Results

Table 1 Displays the socio-demographic details of the participants.

Table 1.Socio-Demographic Profile of Vaccine Recipients

(n =947)

Age	Number	Percentage
15	312	32.95
16	309	32.63
17	326	34.42
Total	947	100.00
Gender		
Male	517	54.59
Female	430	45.41
Total	947	100.00
Education		
Just Literate	31	3.27
Primary	2	0.21
Middle School	21	2.22
Secondary	448	47.31
Senior Secondary	432	45.62
College	13	1.37
Total	947	100.00
10.03% fathers Vs 6.86% mothers had not taken any dose (x^2=6.1, p=0.01)		

The mean age was 16 ± 0.82 years.

The entire study population was literate. A mere 31 (3.27%) had received no formal education but were 'just literate'.

Table-2 Demonstrates the history of COVID -19 and the status of vaccination among the participants and their parents.

Only 3.5% of the participants had a history of COVID-19 and approximately one-fourth had a history of COVID-19 in their immediate family. A majority (71.9%) had no history of COVID-19 in self or in the immediate family.

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Table 2.Status of COVID-19 and Vaccination

(n=947)

History of COVID	Number	Percentage
Self	33	3.48
Family	233	24.60
No	681	71.91
Total	947	100.00
Status of COVID-19 Vaccine in Fathers		
0 Dose	95	10.03
1 Dose	92	9.71
2 Dose	758	80.04
3 Dose	2	0.21
Total	947	100.00
Status of COVID-19 Vaccine in Mothers		
0 Dose	65	6.86
1 Dose	104	10.98
2 Dose	775	81.84
3 Dose	3	0.32
Total	947	100.00

Though only 8.4% (160/1894) of parents had not taken any dose, fathers were more likely to remain unvaccinated (no dose) as compared to mothers (10.0% & 6.9% respectively); X^2 (father vs. mothers unvaccinated) = 6.1, p=0.013.

Among those with a history of COVID-19 in the immediate family, both parents were more likely to have taken both the primary doses i.e. 85.4% (199/233) of fathers and 87.1% (203/233) of mothers as compared to those without such history i.e. 78.5% (561/714) fathers and 80.5% (575/714) of mothers; x2 (father with vs. without history) = 5.2, p=0.02 and x2 (mother with vs. without history) = 5.2, p = 0.02.

On the other hand, a history of COVID-19 in the participants was not associated with the parents decision to complete the vaccination with at least 2 doses; 18.2% (6/33) and 6.5% (27/914) of mothers and 9.1% (3/33) and 10.1% (92/914) of fathers did not take at least 2 doses among those with and without the history respectively; Fischer test p values: p >0.05 (for both mothers and fathers).

The knowledge regarding COVID-19 infection and vaccines and attitude towards the vaccine is depicted in Table-3.

Table 3.Knowledge regarding COVID -19 Vaccines

(n=947)

Source of Information*	Number	Percentage
Social Media	696	73.50
Friends/ Family	167	17.63
TV	44	4.65
Newspaper	37	3.91
Advertisement Hoardings	2	0.21
Radio	1	0.11
Total	947	100.00
Motivation for Vaccination		
Parents	661	69.80
Teachers	228	24.08
Friends	46	4.86
Others	12	1.27
Total	947	100.00
Do you think that COVID-19 Infection Can Occur Even After COVID-19 Vaccination?		
Yes	286	30.20
No	88	9.29
Don't Know	573	60.51
Total	947	100.00
Knowledge About Vaccines		
Yes	942	99.47
No	5	0.53
Total	947	100.00
Knowledge About Protective Measures Against Covid		
Yes	907	95.78
No	11	1.16
Partial	29	3.06
Total	947	100.00
Will you Recommend this COVID-19 Vaccination to Others?		
Yes	943	99.58
No	4	0.42
Total	947	100.00
*Multiple responses possible		

Almost all (99.47%) answered the questions correctly about COVID-19 vaccines of the national program.

A higher percentage i.e. 98.2% (229/233) of those with history of COVID-19 in their immediate family had adequate knowledge regarding the protective measures as against 95% (678/714) without this history; fisher's test p value p<0.05.

Nevertheless, a history of COVID-19 in self was not associated with a higher level of knowledge (94% among those with a positive history vs. 94.8% without; Fisher test value=0.65, p > 0.05)

A very positive attitude was noticed regarding the vaccine as almost all (99.6%) the participants admitted to the

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willingness to recommend the COVID-19 vaccination to others as well.

Table 4 shows the pattern and choice of digital media for studies among the participants.

Table 4.Digital use During COVID-19 Pandemic

(n=947)

Screen Time	Number	Percentage
< 2 hours	252	26.61
2 - 4 hours	290	30.62
4 - 6 hours	269	28.41
>6 hours	136	14.36
Total	947	100.00
Choice of Mode of Study		
Online	273	28.83
Physical	298	31.47
Both	376	39.70
Total	947	100.00

Screen time during the pandemic varied among the participants, from <2 hours to >6 hours per day. Less than 1/3rd chose physical mode as the sole mode for studies. A maximum number preferred a hybrid (both physical and online) mode.

Discussion

A high proportion (99.5%) of the participants had knowledge about COVID-19 vaccines but 60% were unaware about the possibility of breakthrough infection. This can be targeted while educating adolescents regarding vaccination. Knowledge regarding COVID-19 protective measures was also high (95.8%). These levels are higher than that reported by Wirunpan (2021) and Islam et al. (2021). The study population in the present study consists of those attending a large vaccination center voluntarily. Probably the decision to take the vaccine was taken after obtaining information about the same. This is also reflected in the very positive attitude towards the COVID-19 vaccination, as almost all (99.6%) of them were willing to recommend vaccination to others.

Even though almost all the participants had basic knowledge about the COVID-19 vaccines in the national program, knowledge regarding the protective measures was slightly lower (96%) and was higher if there was a history of COVID-19 in the family. Nevertheless, a history of COVID-19 in self was not associated with higher knowledge regarding the protection against the disease.

Though a high proportion of parents (91% of fathers and 93% of mothers) had received at least one dose of vaccine, a lower proportion took both the primary doses (80% of fathers and 82% of mothers). A higher percentage of fathers (10%) with no vaccination as compared to mothers (6.8%) might reflect the fear of wage loss due to the side effects.

The parents were more likely to be vaccinated with 2 doses if there was a history of COVID-19 in the immediate family member but not so with the history of COVID-19 in the adolescent participants.

The higher level of knowledge about preventive measures in the adolescent and that of parents getting at least 2 doses of COVID-19 if there was history of COVID-19 in the immediate family member may indicate the wisdom gained due to the disease in the family. Yet, these parameters were not affected with the history of COVID-19 in the adolescent participant. Perhaps COVID-19 in a minor did not cause the same level of anxiety. This may be due to the milder nature of illness among the minors.[7]

Nevertheless, the high vaccination rates among the parents might have been an influencing factor for the adolescent participants to get vaccinated, which is evident from the fact that 69.8% listed their parents as their motivation for the vaccination.

Another finding of key importance is the impact of social media on this age group as 73.5% of participants quoted the social media as their source of information regarding the COVID-19 vaccines and preventive measures. Also, almost three-fourth of the study participants had a screen time of more than two hours. This highlights the shift from print media, TV and radio. Less than 5% cited any of these as the source of information. One can take cues from this and launch health campaigns online to disseminate knowledge especially through social media to improve the reach to the adolescent age group.

Less than one-third preferred only online or only offline mode of teaching and almost 40% chose a combination of online and offline teaching. Other studies in India and other countries too have reported this.[8,9] Major contributing factor may have been the experience of online classes during the pandemic. The experience has probably led to the realization that a combination of offline and online classes is more satisfactory compared to only online or only offline mode. In fact an Indian study reported a positive response for online education even before the pandemic.[10]

Limitations and Bias

Selection Bias - One of the key limitations of the study is that all the participants are those who came to the vaccination center to get the COVID-19 vaccine, which implies that they are practicing and have a positive attitude

towards COVID-19 vaccination. Social Desirability Bias – With most of the adolescents accompanied by a parent, the participant's response may reflect socially desirable answers rather than their true perception and attitude. With this study mostly founded on self-reported KAP, social desirability bias may have occurred. However, this was partially countered by assuring the respondents of the anonymity of the questionnaires and that the outcomes of the study would not affect their subsequent vaccination (or care) in any way.

Additionally, the study was conducted at the Safdarjung hospital situated in New Delhi, the city population has fairly good information and sources, thus further studies are required in different parts of the country encompassing varying socio-demographic profiles.

Conclusion

A high proportion (99.5%) of the participants had knowledge about COVID – 19 vaccines but 60% were unaware about the possibility of breakthrough infection. This can be targeted while educating adolescents regarding vaccination. Also, most of the adolescents were influenced by the social media and therefore it can be used to launch health campaigns online to disseminate knowledge especially through the social media to improve the reach to the adolescent age group.

Contribution

PT, AK, RN involved in Conceptualization, literature search, writing the original draft of manuscript, planning, conduct and editing. PT, AK, RN, SK, AS, AK and KK were involved in review and editing. All the authors have read and agreed with the submitted manuscript.

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