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Sputnik V vaccine perception and hesitancy in a tertiary health care centre transformed to Covid-19 vaccine centre: A case study

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Abstract:

BACKGROUND: Sputnik V vaccine was approved in India in April 2021 to tackle the pandemic situation. However, there was lack of information on the effects, side effects, and peoples' perception toward it. The present case study aims to evaluate the vaccine coverage, the awareness, and perception toward it and compare the adverse effects after each dose.

MATERIALS AND METHODS: A unique case study was conducted in a sample of 200 participants comparing 2 groups of population who took first and second dose of Sputnik V vaccine during June to November 2021. The data were collected by a prevalidated questionnaire, follow-up telephonic interviews focused on knowledge, awareness, side effects of vaccine, and analyzed using descriptive statistics such as frequency, percentages, mean, and standard deviation.

RESULTS: The vaccine coverage for first and second doses were 98.3% and 96.5%, respectively. The mean age of the participant was 29 + 9.5 years and majority 68.5% were males. Seventeen percent experienced the S/E for the vaccine with 9.5% from second dose. There were usual side effects; however, it was more after second dose of vaccination. Friends and healthcare workers were the main source of information (33.5%) and motivation (43%). Majority (73.5%) were aware of the side effects. Forty three point five percent took vaccine attributed to its protective role, availability, and peer pressure. There was no significant association between type of doses and side effects of the respective doses of vaccine.

CONCLUSION: The vaccine coverage was >90%. Participants were well aware of the vaccine and side effects which were more in second dose. However, there was no significant difference between the two doses of vaccine.

Keywords:

COVID-19 vaccines, healthcare workers, Sputnik V vaccine, vaccine awareness, vaccine side effects

Introduction

Novel Coronavirus SARS CoV-2 (Severe Acute Respiratory Syndrome Coronavirus-2) causing COVID-19 disease originated from Hubei Province, Wuhan city, China in December 2019.^[1] SARS CoV-2 is a beta corona virus of genus Coronaviridae family resembling genetic structure of SARS virus.^[2] World Health Organization

announced the name of this new disease as "COVID-19" and declared it as pandemic escalating lockdown all around the world to control the spread.^[3,4] Over 598 million confirmed cases and over 6.4 million deaths have been reported globally and in India, 44,768,172 confirmed cases of COVID-19 with 531,000 deaths, has been reported to WHO.^[5,6] Various strategies were tried to manage the crisis such as antiviral drugs like Remdesivir,

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monoclonal antibodies, hydroxychloroquine and convalescent plasma therapy, and mass immunization with different COVID-19 vaccines which showed promising results in terms of reducing severity, spread, morbidity, and mortality due to the disease. Central Drugs Standard Control Organization (CDSCO) has granted authorization of three vaccines in India, Covishield (AstraZeneca's vaccine manufactured by Serum Institute of India), Covaxin (manufactured by Bharat Biotech Limited) and Sputnik V (developed by Gamaleya Research Institute, Russia).^[7] Sputnik V, has adopted a unique strategy, using two different recombinant adenovirus (rAd) vectors—type 26 (rAd26) and type 5 (rAd5)—both carrying the gene for SARS-CoV-2 spike glycoprotein (rAd26-S and rAd5-S), which is administered (0.5 mL/dose) intramuscularly in a prime-boost regimen: a 21-day interval between the first dose (rAd26) and the second dose (rAd5). The goal of the strategy was to produce a durable and long-lasting immune response using a heterologous prime-boost vaccination strategy. It is one of three COVID-19 vaccine in the world with efficacy of over 90% and became the world's first registered vaccine against coronavirus.^[8,9]

Sputnik V vaccine was a new vaccine developed in Russia but suggested for its use first time in India to meet the necessity and fulfil the demand during that time. This case study was planned to identify the knowledge, awareness, and side effects along with their perception toward it and to give scientific evidence for its acceptability in Indian context.

Case Study Report

This case study intends to identify the effects of Sputnik V vaccination following each dose of vaccine, its coverage, reasons for dropout and delayed vaccination, and perception of population.

Two hundred participants were involved comparing two groups of population who took first (group A, 100 participants—rAd26s) and second (group B, 100 participants—rAd5s) dose of Sputnik V vaccine in a tertiary healthcare institute, in costal Andhra Pradesh. It was carried out during June to November 2021 after ethical committee approval (24/IEC/GEMS& H/2021).

The data were collected from participants after taking vaccination in the initial 30 minutes through prevalidated prestructured questionnaire which consisted of 25 MCQs and two open ended questions covering sociodemographic profile, knowledge of the COVID-19 disease, Sputnik V vaccine awareness, its side effects, and how to reduce vaccine hesitancy and improve the vaccination drive. It was followed up by telephonic interviews at end of first day, first week, first month, and third month of vaccination in each group. The

data were analysed using descriptive statistics such as mean, standard deviation, proportion, percentages, and Chi-square test.

A total of 200 participants, 100 in each group were involved in the study. In that 68.5% were males and 31.5% were females. The mean age of participant was 29 + 9.5 years. Majority belonged to age group of 18 to 30 years [Figure 1].

Only 17% experienced side effect due to the vaccine. The side effects observed by participants were fever, body pain and headache, and injection site pain. After first dose of vaccination, the common side effects experienced were 2.5% fever, 2.5% headache and body pain, and 2.5% injection site pain as told by the participants. The first dose side effects observed more in males (6%) than in females (1.5%). Likewise, common side effects experienced after second dose of vaccine were 4.5% fever, 2% headache and body pain, and 3% injection site pain. Side effects observed were more in males (6.5%) than in females (3%) [Figure 2].

There was no statistical significance between occurrence of side effects and different type of doses of vaccine (Chi-square value- 0.567 and *P* value .451). Most of the side effects were observed within first 24 hours to end of first week after taking the vaccine and subsided with analgesics and anti-inflammatory drugs. In majority of participants, symptoms lasted for short duration, that is, 2-3 days. No adverse effects were noticed within 30 minutes or end of first month or third month after the last dose of vaccination in any of the participants. No serious side effects, no hospitalization, and no deaths were recorded during this study [Table 1].

The participants were well aware (73.5%) of COVID-19 disease and the Sputnik V vaccine, and the main source for the information was (33.5%) healthcare workers, followed by (32%) family members and relatives. On the other hand (43%), friends, (39%) relatives, and (10%)

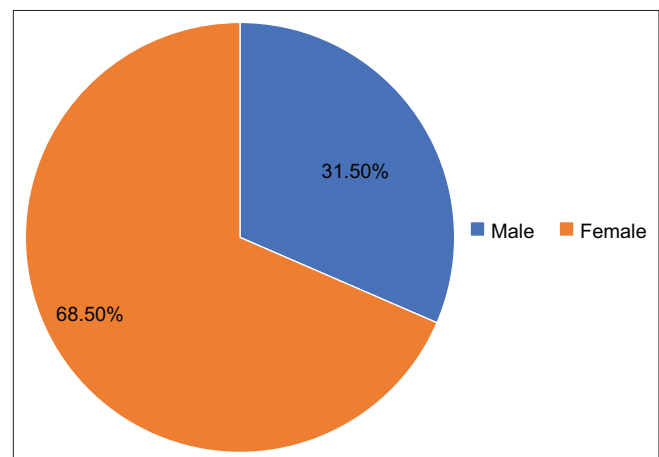


Figure 1: Gender wise distribution (N = 200)

healthcare workers were the source of motivation to take the vaccination [Figure 3].

Ten-point five percent (10.5%) of participants and around 20% of the participants' family members were affected by COVID-19 disease in past 3 months; however, 55% of the participants' family members have already taken COVID-19 vaccine other than Sputnik V. Those who came for Sputnik V vaccination, 73.5% were aware of the side effects prior to vaccination.

The reason for taking the Sputnik V vaccine was mentioned as its protectiveness (43.5%), availability (41.5%), and peer/family pressure (15%) [Figure 4].

The vaccination coverage for first and second doses were 98.3% and 96.5%, respectively. The dropouts were mostly migrant workers. Fourteen percent had a delay in taking second dose of vaccine attributed to their personal commitments, reluctance due to the crowd for vaccination, misinformation regarding the effectiveness of vaccine, and hesitancy/fear to get side effects after the vaccination [Table 2].

The suggestions for reducing vaccine hesitancy and improving vaccination drive were focused on availability of vaccine at all sectors, opportunity to choose a type of vaccines, house to house vaccination facility, provision of medicine kit to tackle side effects at home, awareness campaigns, and appointment of more staff at vaccination centre, etc.

Discussion

The case study identified very few side effects, most commonly after 24 hours of each dose. Similarly, a study

Table 1: Side effects after Sputnik V vaccination at various intervals (n=200)

Duration after vaccination	Occurrence of side effects	Frequency	Percentage
30 min	Nil	0	0%
24 h	Weakness	29	14.6%
1 st week	fever, headache, body pain, and injection site pain	34	17%
1 st month	Nil	0	0%
3 months	Nil	0	0%

Table 2: Reasons for delay in taking the second dose of vaccination (n=100)

Reasons for delay	Frequency	Percentage
Personal commitments	3	3%
Reluctancy due to the crowd for vaccination	4	4%
Misinformation regarding effectiveness of the vaccine	1	1%
Hesitancy/fear to get side effects	6	6%

by Logunov, Denis Y *et al.* in Moscow, Russia in 2020, found 91.6% efficacy of Sputnik V vaccine without any serious side effects, or any vaccine-related death.^[10]

The side effects were more after second dose, among males with in <60 years of age group in this case study. Similar findings were observed in Montalti, Marco *et al.* increased adverse effects noticed in second dose (66.8%), and majority of symptoms appeared within 24-48 hours.^[11] However, Pagotto, Vanina *et al.* explains the incidence of side effects among healthcare workers, observed only after first dose of Sputnik V vaccination.

Although Babamahmoodi, Farhang *et al.* noticed similar side effects, Pagotto, Vanina *et al.* and Zare, Hamed *et al.*

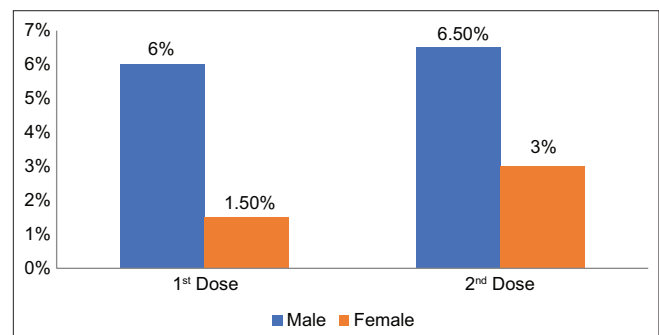


Figure 2: Side effects experienced after Sputnik V vaccination (N = 200)

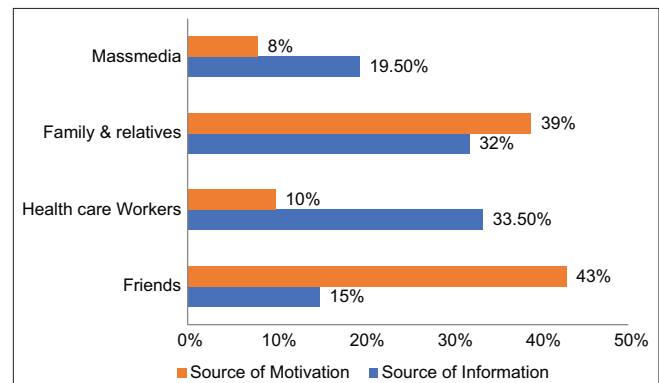


Figure 3: Source of information and motivation for getting the vaccination (N = 200)

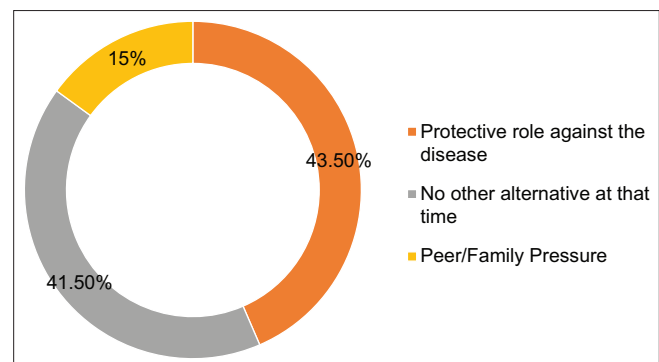


Figure 4: Reasons for taking the Sputnik V vaccination (N = 200)

reported more side effects in females and in age group less than 60 years.^[12-14]

In current case study, side effects were more in younger generation. Parida, Swayam Pragyam *et al.* has similar findings; however, it was more after first dose of vaccination Kamal, Deep *et al.* observed the adverse effects more in older population (>50 years).^[15,16]

A case series, by Greinacher, Andreas *et al.*, reported rare adverse effects like Vaccine-Induced Immune Thrombotic Thrombocytopenia following immunization by Oxford AstraZeneca vaccine. Similarly, a case report by Schultz, Nina H *et al.* in Norway also mentioned the thrombotic events after taking the AstraZeneca vaccine. In both the studies, deaths were also reported after vaccination.^[17,18]

In the present study, majority of participants were well aware of the vaccine. Similar study concluded that misinformation has a negative impact on the individuals' attitudes, subjective norms, and vaccine acceptance. Whereas individual awareness, interest in personal protection, positive attitudes, and constructive subjective norms have a strong positive influence on the COVID-19 vaccine acceptance. Most common concern for hesitancy was the vaccine side effects and the most trusted source was health workers.^[19,20]

Limitations

A case study conducted at one single vaccination center. Time constraint was a concern. Perception of participants were collected through telephonic interview which were subjective. There is a scope for replicating the study in a larger group of population at multiple centers which could be planned as further study.

Conclusion

The present case study showed a vaccine coverage of >90%. Participants were well aware of the vaccine side effects which were more in second dose. However, there was no significant difference between the two doses of vaccine. Mild to moderate side effects were observed for both the doses within first week after taking vaccination which lasted for short duration, that is, 2-3 days.

Take home message

This case study observed only mild and tolerable side effects, thus Sputnik V vaccine could be considered as an alternate strategies to overcome the pandemic.

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Conflicts of interest

There are no conflicts of interest.

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