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RESEARCH ARTICLE

COVID-19 VACCINATION: KNOWLEDGE, ATTITUDE & CHALLENGES AMONG MEDICAL AND NURSING STUDENTS-A WEB BASED SURVEY

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Abstract

Background: Attitude towards vaccination has been one of the major hurdles in vaccination drive. To reduce the burden of this pandemic on society, it is crucial for each and every one to get the vaccination on time. Through this study, we have attempted to study the knowledge and attitude of medical and nursing students and the challenges they have faced after both the doses of vaccine.

Material and Methods: We have conducted a questionnaire based survey, circulated among 1st year medical and nursing students of AIIMS Rishikesh in the form of Google form link.

Results: Out of total 173 responders, almost 65% students reported Internet to be their most trusted source of information regarding COVID vaccine. Fear of being infected was found to be the major concern among 68.8% studentsduring this pandemic and safety of vaccine was therefore seen as the most common cause (48%) of hesitation while taking vaccination. Although most of the responders, who contracted COVID between these two doses, reported mild symptoms (37.6%), majority of them (76.9%) strongly believe that vaccine was helpful in mitigating the severity of infection.

Conclusion: We concluded that fear of being infected and safety of vaccine has been the major concern of Medical students during this pandemic and the cause behind their hesitancy regarding vaccination. However, based on their experience, most of them strongly believe that vaccine has been helpful in mitigating the severity of infection.

Introduction:-

The Coronavirus disease 2019 (COVID-19) commenced in the later part of 2019 and it was in March 2020, when it was declared a global pandemic **[1].**The causative agent responsible for the infection was Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which claimed several millions of lives at a global level **[2].** The spectrum of its manifestations varied from being asymptomatic at one end to severe illness proving fatal at another, especially

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during the second wave, when a lot more than expected hospital admissions and deaths occurred at an alarming rate **[3,4].**

In order to decrease the spread of infection in public places, some preventive measures were implemented by the government in majority of countries, like wearing masks, social distancing, limiting the travel across cities and countries, using sanitizers frequently and declaring lockdown etc. Even though the spread was slowed down to an extent with these measures, the morbidity and mortality still continued to rise, demanding more appealing solution to contain the pandemic situation **[5,6].**

The only and best solution to this problem, as suggested by the Director of World Health Organization (WHO), was to produce vaccines against the infection and ensure their availability worldwide**[7].**All the nations worked hard and came up with a few vaccines, knowing the challenges with long term compliance of preventive measures like social distancing and wearing masks. However, the vaccination drive is receiving mixed responses owing to the difference in knowledge and attitude among people towards vaccination**[3].**

Pfizer/ BioNTech (BNT162b2) and Moderna (MRNA- 1273) developed two mRNA-based vaccines, which were issued emergency use authorization (EUA) by Food and Drug Administration (FDA)**.** Similarly, in India, vaccines like Covishieldand Covaxin were developed. The former was manufactured by Serum Institute of India, obtaining license from AstraZeneca (adenovirus vectored ChAdOx1 nCoV-19 vaccine – AZD1222)and the latter was manufactured by Bharat Biotech, together with Indian Council of Medical Research **[8-14].**

Initially as there was a restricted supply of vaccines, the government decided to immunize the healthcare professionals first, keeping in mind their vulnerability **[15].**Since the medical and Nursing students encounter a lot of patients with COVID-19 infections on daily basis, they are highly vulnerable group themselves to acquire the infection, which can ultimately lead to shortage of healthcare professionals in this crucial time, when they are needed the most. Vaccinating the medical students on time can thus prove to be beneficial for not only the healthcare system but also for the society, encouraging and strengthening the vaccination drive.

Refusal or late acceptance for vaccination, due to any cause, despite its availability, is termed as vaccine hesitancy. This is one of the various hurdles causing hindrance in the path of success of current vaccination drive **[1].** To combat this tough situation, winning public faith is essential and for the same, there is a need to spread awareness among the people, regarding the vaccines **[16].**Through this study, we have tried to assess the knowledge, attitude and challenges faced by the medical and Nursing students with regards to COVID-19 vaccination, as the decision made by the healthcare professionals can have impact on general public and eventually on the whole vaccination programs**[17].**

Materials &Method:-

A questionnaire based survey was conducted and circulated among 1st year medical and Nursing students of AIIMS Rishikesh in the form of Google form link. The respondents were considered to be consenting to participate in the study through the act of answering and submitting the questionnaire.The questionnaire included questions regarding their source of information, their causes of hesitation for vaccination, comparative responses post-vaccination and their attitude towards the upcoming booster dose of vaccines etc.**[18].** The questionnaires were validated by some experts before being circulated. Responses were obtained either in multiple choice or free-text form. The students were allowed to tick multiple answers, if applicable. The identity was kept anonymous while thequestionnaire was prepared on the basis of similar previous studies, keeping Declaration of Helsinki in mind **[19-21].**Sample size was calculated pertaining to the prevalence ofCOVID-19 vaccine hesitancy or refusal among medical or nursingstudents from previous reports.

Results:-

Out of total 173 responders, almost 113 (65%) students reported Internet to be their most trusted source of information regarding COVID vaccine, as shown in **Fig. 1.**

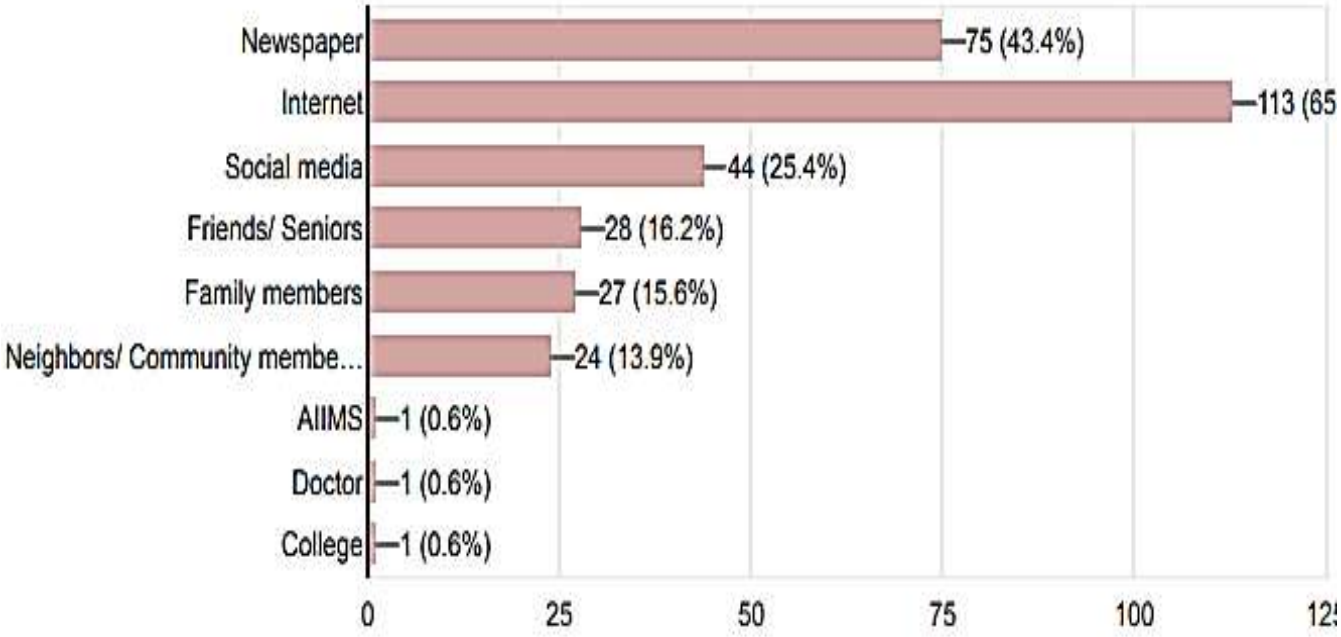

Fig.1:- Source of information regarding COVID-19.

Fear of being infected was found to be the major concern among 119 (68.8%) students during this pandemic**(Fig. 2)** and safety of vaccine was seen as the most common cause (48%) of hesitation while taking vaccination.

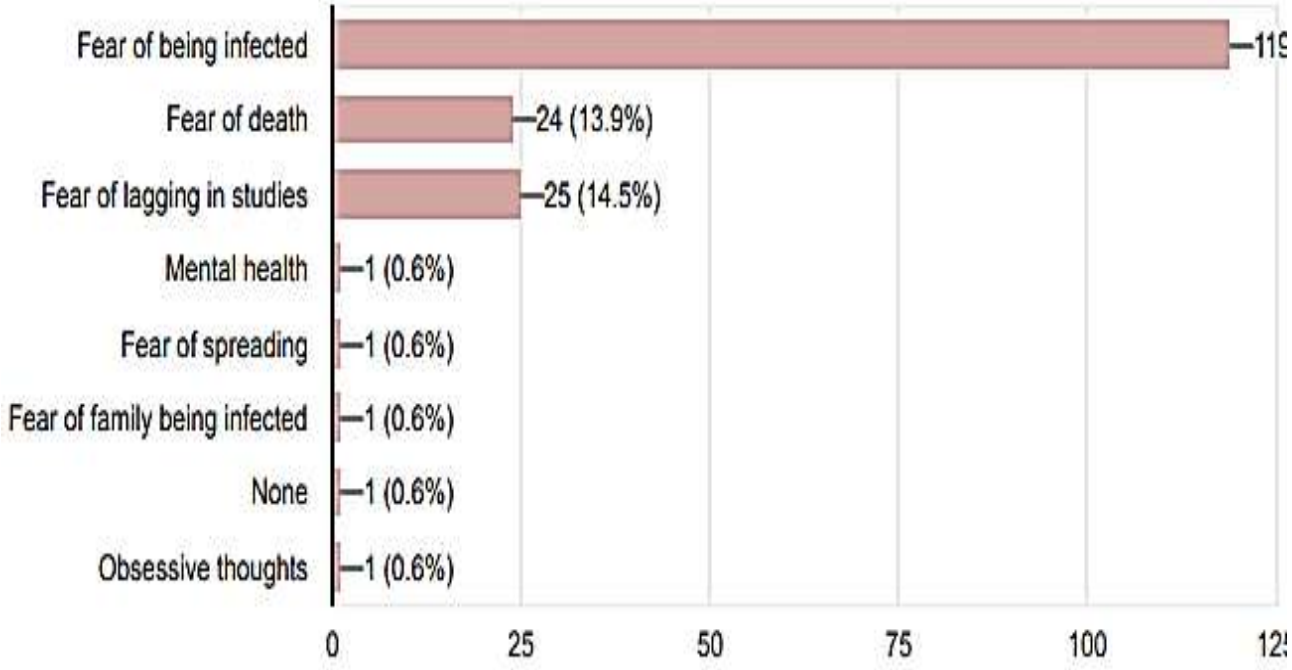

Fig. 2:- Major focus of concern during COVID-19.

Majority of the students (53%) were aware of the types and availability of vaccines in India, as seen in **Fig. 3.**

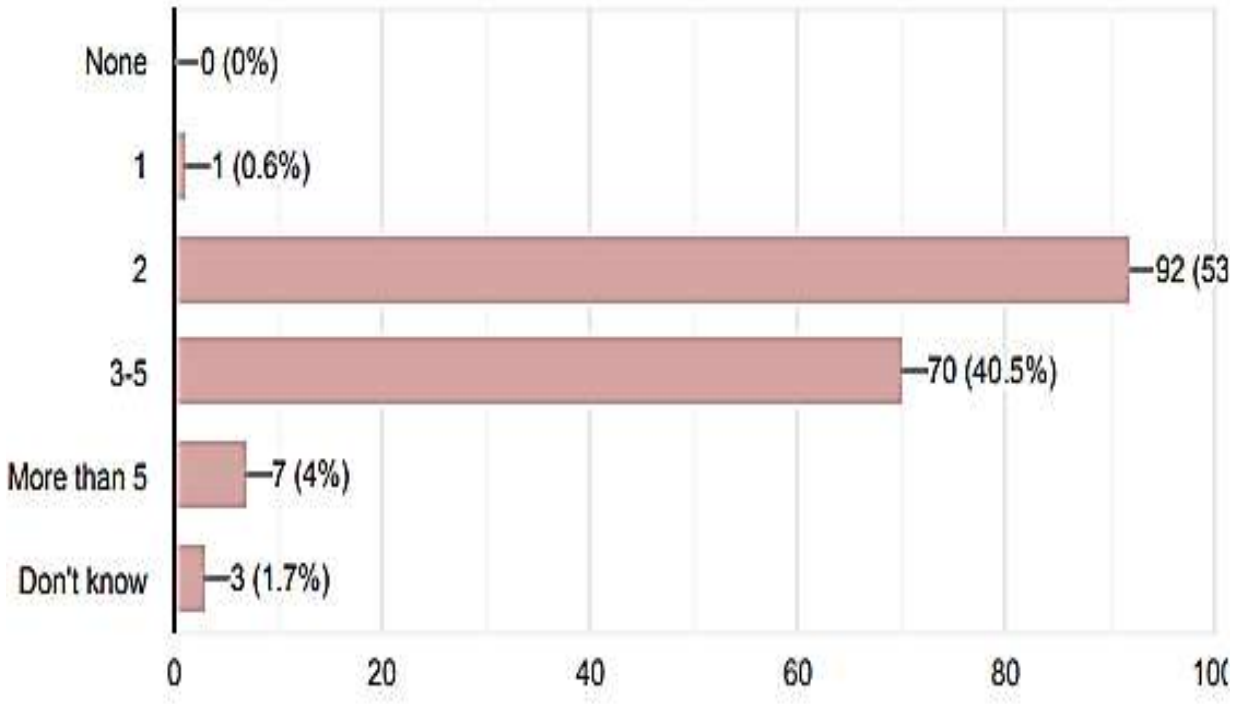

Fig. 3:- Knowledge on types of COVID-19 vaccines in India.

81 students (46.8%) were administered both the doses of COVISHIELD within a gap of almost three months **(Fig. 4)**with post vaccination symptoms being more severe after 1st dose in majority (76.9%) of them**(Fig. 5).**

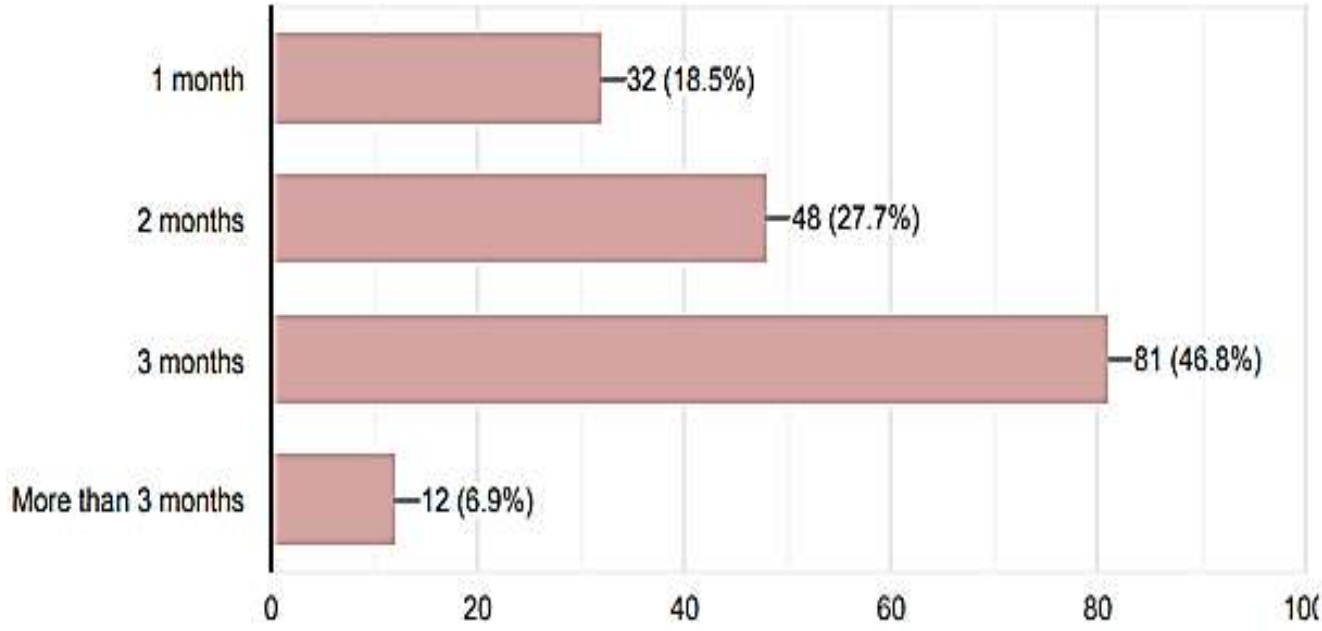

Fig. 4:- Gap between two doses of COVID-19 vaccines.

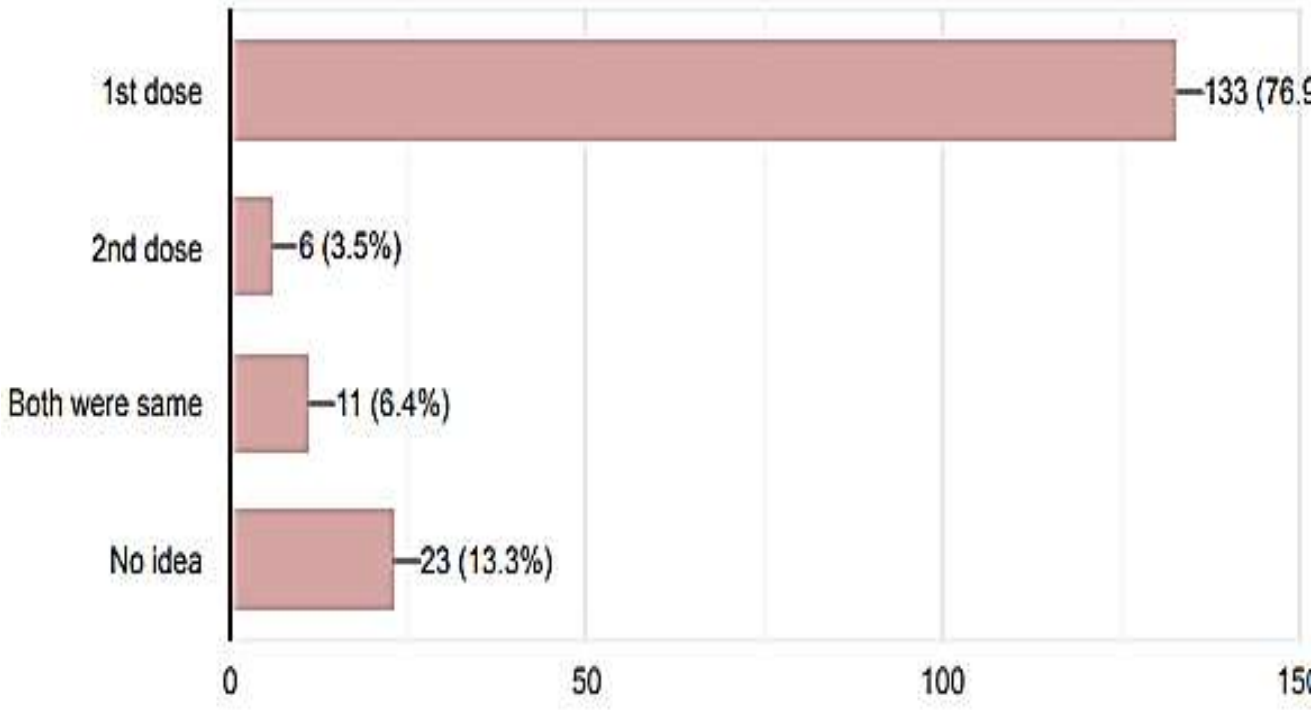

Fig. 5:- Severity of post vaccine symptoms.

As represented by **Fig. 6**, although most of the responders, who contracted COVID between these two doses, reported mild symptoms (37.6%), majority of them (76.9%) strongly believe that vaccine was helpful in mitigating the severity of infection **(Fig. 7).**

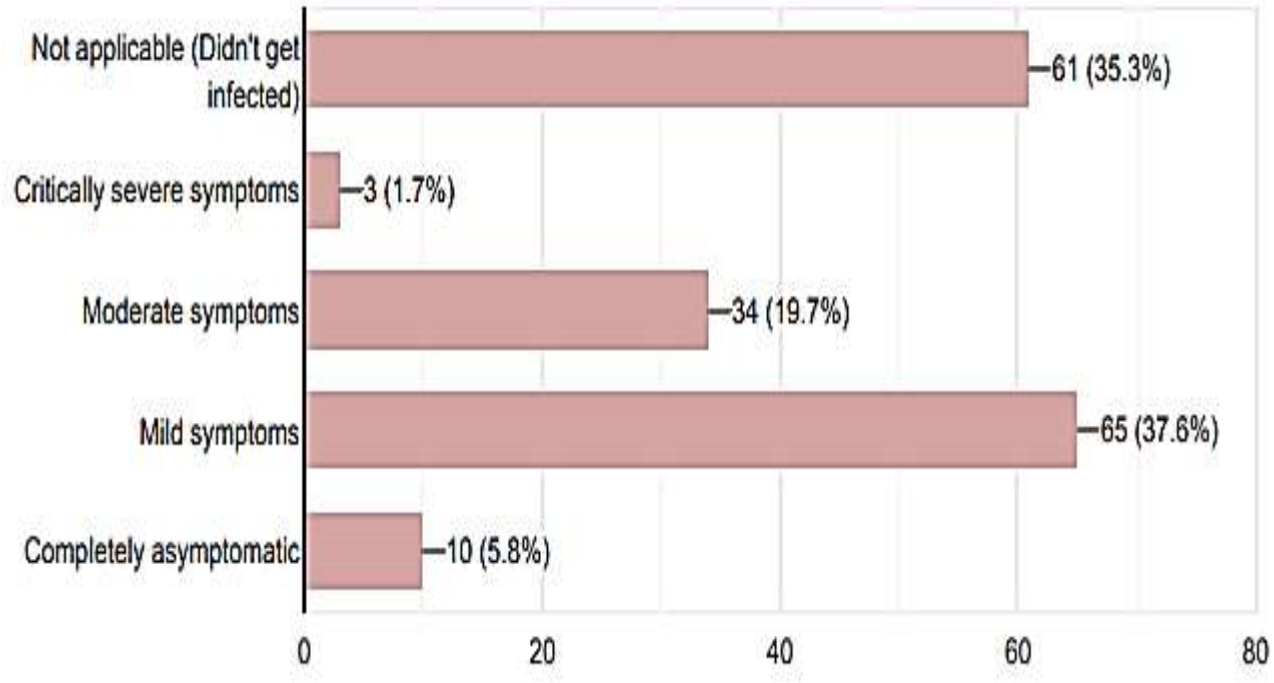

Fig. 6:-Severity of COVID infection after vaccination.

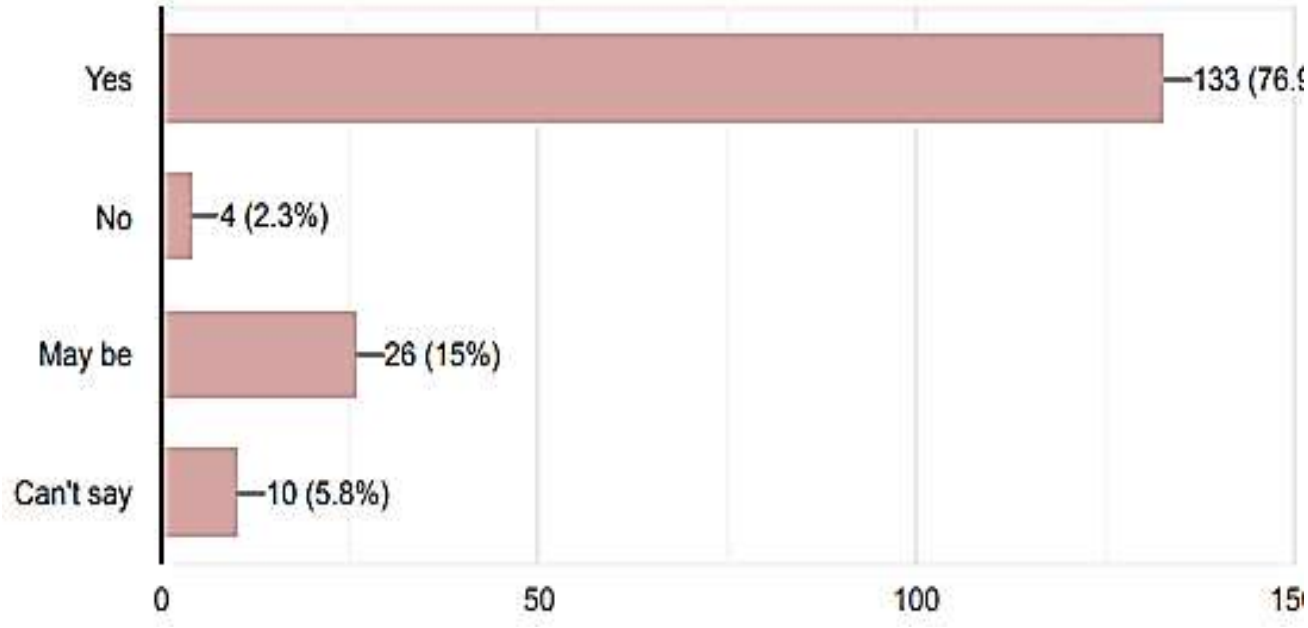

Fig. 7:- Role of COVID vaccine in mitigating severity.

Discussion:-

Initially, due to limited supply, the vaccines issued to healthcare institutions were predetermined by the government. Hence, selecting or refusing the vaccine was not an option for most of the healthcare professionals**[18].**Vaccine hesitancy is still one of the various hurdles causing hindrance in the path of success of current vaccination drive **[3].** In fact, in 2019, vaccine hesitancy was listed by WHO as one of the top ten challenges to global health **[22].**

The present study revealed that safety of vaccine was the most common cause (48%) of hesitation while taking vaccination, among medical & nursing students.Although most of the responders, who contracted COVID between these two doses of vaccination or post-vaccination, reported mild symptoms (37.6%), but majority of them (76.9%) still strongly believed that the vaccine was helpful in mitigating the severity of infection.

A cross-sectional study, carried out on general population, found that 28.8% of the participants in the working-age group, refused from taking the vaccines. The possible factors behind this decision could be history of non-compliance with previous vaccines, insufficient education and underestimating the ferocity of COVID-19**[23].**

The statistics according to a meta-analysis, revealed that among all the COVID-19 positive patients, healthcare professionals comprise almost 10% **[24].** A questionnaire based online surveywas conducted on 2133 Egyptian medical students which concluded that ~46% students were hesitant to take the vaccines, with major concern being adverse effects (96.8%) and ineffectiveness (93.2%) **[3].**

In a cross- sectional survey conducted by Dzieciolowska et al., 2761 health care workers (HCWs) from 17 Canadian healthcare institutions, were invited for immunization with Pfizer-BioNTech mRNA, in December 2020.Out of these, 80.9%HCWs agreed to take the vaccines, while others were either hesitant or firm refusers. The most common factor behind the denial was found to be the newness of this vaccine and lack of trust on the manufacturing companies. These refusers rather strongly believed in developing natural immunity against COVID-19 by acquiring the infection**[25].**

According to a research based on behavioural economics approach, with rapid development of vaccine, the acceptance and efficacy of vaccine both dropped down remarkably**[26].**Similarly, emergency use authorization by FDA could possibly be another factor responsible for lower acceptance rate of vaccines, as opposed to full approval**[27].**

Xu J and Liu C conducted a study on Chinese population before the availability of vaccine. They observed that out of 1,532 participants, 57.9% were ready to get a self-paid COVID-19 vaccine. The most common factors that were bothering the participants included adverse effects (82.3%), price (72.1%), and potency (55.1%) of vaccine. Around 3.3% of the participants were just not in favor of taking the vaccine, without any particular reason**[28].**On the other hand, a cross-sectional study conducted in Jordan in the year 2021 revealed a very low acceptance rate (37.4%) for COVID vaccines with 36.3% participants completing refusing and 26.3% being unsure about vaccination **[29].**

The disparity in the findings of these studies could be due to different time frame that captured different pandemic intensity levels.However, all the research work points to the necessity of improving public awareness regarding the COVID-19 vaccine's efficacy and safety for its future broad use **[30].**

The present study has some limitations like a very small sample size and single centred study as we have taken into account only medical and nursing students enrolled in 1st year of our institution. In order to follow social distancing under the strict guidelines of COVID-19, this online survey was conducted, rather than an offline one. These factors can interfere with the generalizability as well as credibility of the study.

Conclusion:-

In the current study, the knowledge and attitude of medical & nursing students, regarding COVID-19 vaccine, was assessed and it was concluded that majority of them are well aware of the advancement related to these vaccines. Although not provided with the options to choose from and having an earlier hesitation, the acceptance rate was good and most of them believed that these vaccines have a role in mitigating the severity of the disease. So these students can be role models for the general population and hence can strengthen the vaccination drive. The results could be applied in the future to create communications and promotion initiatives that are more effective at boosting vaccination rates.

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