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KNOWLEDGE, ATTITUDE, AND AWARENESS OF MEDICAL AND PARAMEDICAL STUDENTS TOWARDS COVID-19 BOOSTER VACCINATION IN A TERTIARY CARE TEACHING HOSPITAL: A SURVEY BASED CROSS-SECTIONAL STUDY.

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Abstract.

Background:

Covid-19 booster vaccination was launched in India on 15 July 2022. Medical and paramedical students play a pivotal role in motivating the general public in a given locality towards a Nation's vaccination drive. The present study aimed to evaluate the student's perspective towards the COVID-19 booster vaccination.

Objective: To assess medical and paramedical students' knowledge, attitude, and awareness of COVID-19 booster vaccination.

Method:

A cross-sectional study was carried out between 14 August 2022 to 12 September 2022 among medical and paramedical students through an online survey questionnaire. The data obtained was tabulated in Microsoft Excel. Study variables were expressed as frequencies/ percentages and graphically represented.

Result:

Our study revealed that MBBS (99.5%), Nursing (98.6%), and DMLT (94.8 %) students have good knowledge about the availability of booster vaccination. 97.4% of MBBS, 100% of nursing, and 90.9% of DMLT students want to motivate the general population towards immunization. At the same time 29.1% MBBS, 54.1% nursing, and 24.7% DMLT students were apprehensive about possible adverse effects of the booster vaccination. 56.7% of MBBS, 27% of nursing, and 48.1 % of DMLT students are unaware of the safety of booster doses in pregnancy and lactation.

Conclusion:

Awareness of booster vaccination was found to be adequate among a majority of participants. Most were confident about motivating the general public towards vaccination. However, the hesitancy for the same observed towards the vulnerable population could be attributed to the paucity of information about the long-term safety, and efficacy of the booster vaccination.

Recommendation:

Messaging around boosters and vaccines needs to emphasize they are safe and convenient to take and that both are important.

Keywords: Covid-19 booster vaccination, medical students, nursing students, awareness., Submitted: 2023-08-28 Accepted: 2023-09-12

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1. INTRODUCTION.

For more than the last 2 years, the world has been struggling in the battle against the Covid-19 pandemic. Multiple non-pharmaceutical measures including lockdown, social distancing, and wearing of face masks resulted in a relative slowing of SARS-COV-2 dissemination, International health authorities realized that these measures were not sufficient to control the disease. 1 Then they decided to impose the concept of herd immunity or population immunity, by which, indirect protection from an infectious disease can be acquired either by immunization of a large portion of a community through vaccination or natural infection.2According to WHO, vaccination is the best way by which a community can achieve herd immunity.3

India began the administration of Covid-19 vaccination on 16 January 2021. 86% of the eligible population has already been vaccinated with 1st and 2nd doses.4

Several data suggest waning of immunity and a drop over time in antibody titer following covid-19 vaccination and the reduced antibody titer may be associated with lower protection.5Studies reported an association between time-from-vaccine and incidence of breakthrough infection especially by SARS-COV-2 delta variant.6,7 So public health institutes and the Government started administration of COVID-19 booster dose (3rd precaution dose) to enhance the vaccine's effectiveness. India started giving booster doses on July 15, 2022.8,9 But as per the latest data (September 12, 2022), only 12.8% of Indians are vaccinated with booster doses.10 As the vaccination status suddenly drops from 86% to 12.8%, we wanted to investigate what might be the contributing factors for this attitude towards Booster dose vaccination.

Medical and paramedical students are a major and reliable source of information for the community. They work as a role model for the general population and their positive attitude towards booster vaccination can motivate the attitude of the general population towards the same.11Thereare few studies highlighting this aspect of Covid-19 vaccination. In this con- text, therefore the present study aims to assess the knowledge, attitude, and awareness of med- ical and paramedical students towards covid-19 booster vaccination.

1.1. OBJECTIVES.

- To assess the knowledge of medical and paramedical students about COVID-19 booster vaccination.
- To assess the attitude of medical and paramedical students toward COVID-19 booster vaccination.
- To assess the awareness of medical and paramedical students of Covid-19 Booster vaccination.

2. MATERIAL AND METHODS.

2.1. Design.

A cross-sectional study was conducted from 14 August 2022 to 12 September 2022 to assess the knowledge, attitude, and awareness of MBBS and paramedical students towards COVID-19 booster vaccination after obtaining permission from the IEC committee in Maharaja Krishna Chandra Gajapati Medical College & Hospital, Odisha.

2.2. Sample.

Convenient sampling was done from the cohort of MBBS, Nursing, and DMLT students. Informed consent was obtained from the study participants. Those patients who did not give consent for participation were excluded from the study.

2.3. Tool.

An online questionnaire was created using Google form, which was validated by experts and

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its reliability was checked through face and content validity. A pilot study was done to ascer- tain the possible outcome measures. The 1st sec- tion contained the student information, 2nd sec- tion depicted the knowledge and 3rd section was about the attitude and awareness of the concerned students towards booster vaccination.12

2.4. Statistical Analysis.

The data obtained were tabulated in Microsoft Excel. Knowledge and attitude variables were expressed by frequencies/ percentages and represented graphically.

3. RESULTS.

Around 416 responses were collected from different semesters of MBBS students. Out of 100 students each from Nursing and DMLT students74 and 78 responded respectively. Among the study subjects 39.7% from MBBS, 94.6% from Nursing, and 57.1% from DMLT were female respondents.

3.1. Knowledge attitude and awareness of medical students.

414 participants were eligible for Covid-19 booster vaccination of which 89.2% had knowledge about dose availability for the general population while 9.1% were not sure and 1.7% said that it was not available for the general population. Regarding the various sources of information about Covid booster vaccination, the internet was the major source (n=278, 66.8%) followed by social media (n=237, 57%), friends and seniors (n=230,55%), and teachers at medical college (214,51%).[Figure-1]. 90.6% of MBBS students knew that India was making its own Covid-19 vaccine, whereas 8.9% were not sure about it. 97.4% of MBBS students agreed to motivate their fellow students/ general population to take Vaccine Booster Dose whereas 2.6% remained neutral in this aspect 72.6% of MBBS students were triple vaccinated whereas 26.9% only had taken 1stand 2nd doses.

Out of 416 respondents, 71.4% opined that Covid 19 booster dose was very safe while 28.6 % held a neutral stance on the same. 53.8% had a strong belief that booster dose prevented serious infection associated with Coronavirus but at the same time 43.5% held a neutral opinion while the rest disagreed. 29.1% strongly believed that there were side effects to Covid booster vaccination that were yet to be discovered while 56.3% remained neutral and the rest strongly disagreed. Few of the respondents [11.1%] thought that boosters would make a lot of money for the various pharmaceutical companies while 41.6% strongly disagreed with the same.

On being asked whether natural immunity would last longer than a Covid booster 45.7% did not feel so 34.1% strongly agreed while 20.2% strongly disagreed. Similarly, 46.9% had a neutral opinion on natural exposure being the safest protection against COVID-19, 24.5% strongly agreed and 28.6% strongly disagreed. Natural exposure being safer than booster was strongly agreed by 46.6% of the study participants. (Table-1) Out of the 416 MBBS participants majority (77.2%) did not feel that one needs to take a booster only when made mandatory by the government while 22.8% said they would take a booster only when made mandatory by the government.

When enquired about the various factors for hesitation and unwillingness to take booster vaccination the majority were concerned about safety (168, 40.4%) followed by efficacy (151,36.3%). (Figure-2) 46.2% of the participants showed interest to participate in future Covid vaccine trials while majority disagreed for the same (53.5%).

3.2. Knowledge attitude and awareness of Paramedical students.

Out of the 74 participants from B.Sc. Nursing most (98.6%) of them were eligible for Covid Booster Vaccination. 100% of the participants knew that the booster vaccination was available for the general population. The common source of information was from the internet (52.7%, 39) followed by official circulars (48.6%, 36), social media (47.3%, 35), and teachers (35, 47.3%). 97.3% knew that India was making its own Covid vaccine. All (100%) want to motivate their fellow students/general population towards booster vacci-

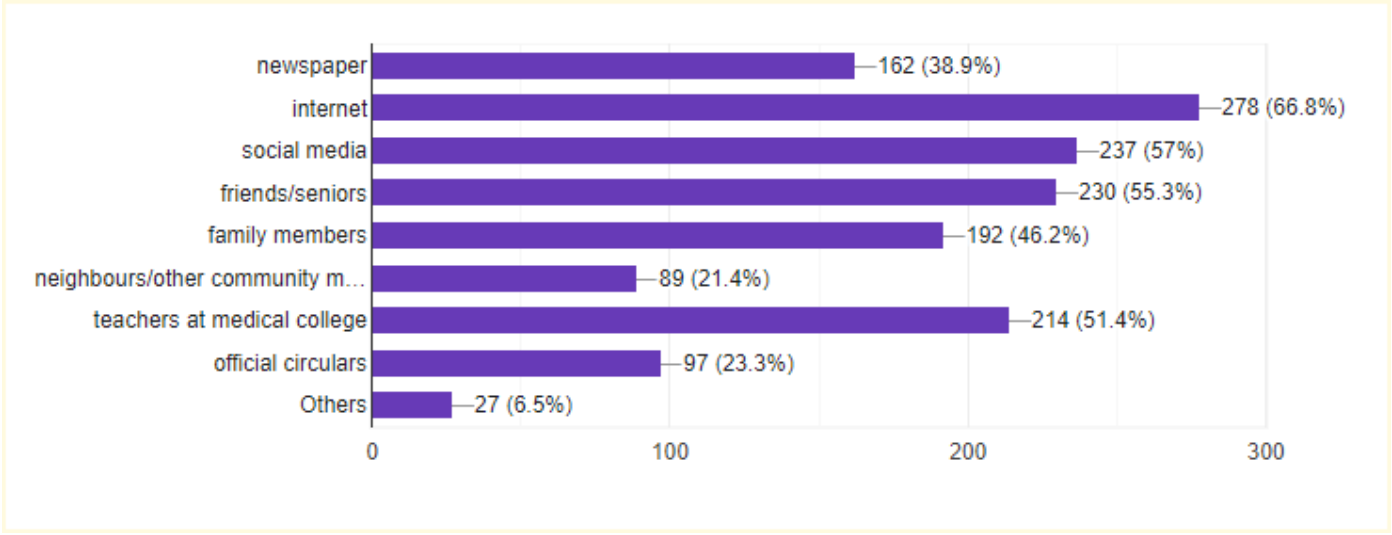

Figure 1: **Sources of information about Covid Booster Vaccination.**

Table 1: A**ttitude towards natural exposure natural immunity**.

SCENARIOS	**MBBS%**	**Nurs-ing%**	**DMLT%**
Natural immunity lasts longer than Covid vaccination	20.2	9.5%	20.8%
Natural infection would give the safest protection against Covid	28.6%	8.1%	19.5%
Natural exposure was safer than booster	46.6%	12.2%	31.2%

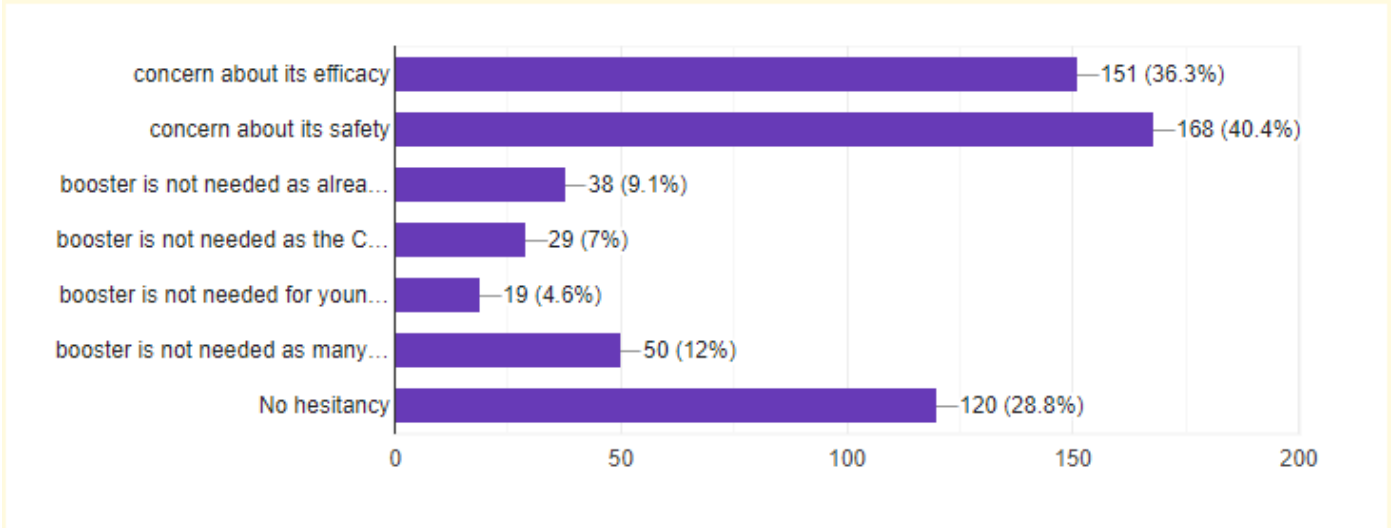

Figure 2: **Reasons for hesitation and unwillingness to take booster vaccination**.

nation. Only the first and second doses were taken by 16.2 % of the participants while 83.6% took all the recommended doses of vaccination.71.6% of nurses know that Vaccine Booster Dose is safe in pregnancy and lactation, whereas 27% are not aware of the safety of booster dose in this condition. It was strongly agreed by 85.1 % that the Covid booster vaccine was very safe. Among the participants, 100% stated that they would recommend the booster to friends, family, and the general population. The booster vaccination that prevented serious infection in the future was strongly agreed upon by 67.6% of the participants while 28.4 % maintained a neutral voice on the question. 54.1% strongly agreed that side effects were yet to be discovered while 43.2% held a neutral opinion on that. 71.6% strongly disagreed that boosters would make money for the pharmaceutical companies.

When asked whether natural immunity lasts longer than COVID-19 booster vaccination, the majority were unaware of it. Again, when queried if natural exposure to the virus would give the safest protection 63.5% responded neutral. 83.8% strongly disagreed that they would take booster vaccination only when made mandatory by the government. (Table-1) There was no hesitancy towards getting vaccinated with a booster dose in 56.8% (42) of the participants at the same time 33.8% (25) were concerned regarding its safety. Majority of the participants 68.9% expressed willingness to participate in the future Covid vaccine trials but 31.1% denied.

Out of the 77 participants from DMLT, 94.8% were eligible for Covid Booster Vaccination. 98.7% of the participants knew that the booster vaccination was available for the general population. The dominant source of information was from the internet (72.7%, 56) followed by), social media (63.6%) and teachers (31, 40.4%). 92.2% knew that India was making its own Covid vaccine while 7.8% were not sure about it. 62.3% of the participants were vaccinated with all three doses of vaccine. 90.9% want to motivate their fellow students/ general population towards booster vaccination.48.1% of students are not aware of the safety of the vaccine in pregnancy and lactation but at the same time, 37.7% of them know that Vaccine Booster Dose is safe in pregnancy and lactation.

In response to the safety of the Booster Vaccine for the general population, 74 % felt that the Covid booster vaccine was very safe while 24.7% continued to remain neutral. Among the participants, 90.9% stated that they would recommend the booster to friends, family, and the general population.

50.5% responded neutral to Covid vaccination preventing serious infection in the future while 45.5% strongly agreed that it indeed prevents such severity. 11.7% strongly agreed that the booster would make money for the pharmaceutical companies while 55.8% strongly disagreed and 32.5 % upheld neutrality in opinion.

Natural immunity lasted longer than COVID vaccination was strongly agreed upon by 41.5%. It was strongly agreed by 39.5% of the participants that natural exposure to the virus will give the safest protection while 19.5 % strongly disagreed and the rest 41.6% remained neutral. Natural exposure to the virus was safer than booster there was a more or less similar response to agreement, disagreement, or neutral. (Table-1) 74% of the participants of the participants strongly disagreed that they would take COVID-19 booster only when made mandatory by the Government.

48% of the participants showed no hesitancy towards booster dose vaccination while 36.4 % were hesitant due to the safety of the booster vaccine followed by concerns about efficacy (19.5%).

74 % of the participants were positive that they would participate in future clinical trials on COVID-19 vaccination.

4. DISCUSSION.

India has been spearheading its vaccination program and manufacturing vaccines which has given a tremendous impetus to the Vaccination Program worldwide. Therefore, assessment of vaccine acceptance and booster for the same at periodic intervals is necessary for curbing the spread of Covid-19which, in turn, influences the pandemic dynamics to a greater extent. The

present study which consists of 416 participants from MBBS, 74 participants from B.Sc. Nursing and 77 participants from DMLT. The cumulative population of each is around 1250,240 and 240 in MKCG MCH. However, only 33% of MBBS, 32% of Nursing, and 30% of DMLT students responded to the face and content-validated semi-structured questionnaire sent through Google Forms. The data was collected and converted to spreadsheets on MS Excel for evaluation. The questionnaire estimated the knowledge and attitude of the participants spread across 10-12 points. To understand the challenges associated with Covid-19 booster hesitancy among the general population it is imperative to estimate the awareness and attitude of the drivers of this program in the form of medical and paramedical students.

Regarding the safety of VBD in Pregnancy and Lactation 56.7% of MBBS students and 43.1% of DMLT students don't know the safety of the booster dose. In contrast to that 71.6 % of the Nursing participants were sure that the VBD did not affect pregnant and lactating mothers. (Figure-3)

In comparison to the overall Covid-19 VBD acceptance among participants from MBBS, Nursing, and DMLT, which stood at 71.4%, 85.1%, and 74% with a study done in Czechia,13 the acceptance was around 87.8%. This could be due to the hidden factors concerned with the dissemination of information and heavy dependence on the internet and social media, which often presented contradictory views opinions, and analyses about COVID-19 vaccination since its inception. Moreover, there is yet no published scientific evidence on the safety of the vaccine in Pregnant and Lactating mothers which may be a hindrance to the acceptance and dissemination of information on the Covid-19 vaccine among the study participants.

Vaccine hesitancy remained existent among some of the students as safety and efficacy were the factors of concern towards being hesitant. Unlike other studies, only 11.1% of MBBS, 8.1% of Nursing, and 11.7% of the DMLT students strongly agreed that pharmaceutical companies would make a good lot of money from the VBDs. It implies that there was a strong consensus about the companies not reaping excessive profits from the sales of the VBDs.

Government mandate was not a prime factor in endorsing vaccination drive rather it was the concern for own safety and protection that helped in acceptance of Covid VBD as was evident from the results where 22.8% of MBBS, 15.2% of Nursing and 26% of the DMLT, agreed that they would take booster only if it was made mandatory by the government.

This implies that the need for Covid booster doses to curtail the spread of the virus and to stop future infections was affirmatively understood by a majority of the study participants. Those having a neutral stance were either confused or didn't have adequate comprehension of the scenario.

The positive response obtained for participation in COVID-19 vaccine trials in the future among MBBS students could be due to better knowledge and appraisal of the process of clinical trials through their course curriculum.

5. CONCLUSION.

To conclude many students are aware enough regarding this 3rd precautionary dose, have been triple vaccinated, able to motivate their fellow students and the general public to take the vaccine. However, the paucity of information regarding the long-term safety, and efficacy of the booster vaccination, particularly in the most vulnerable populations like pregnant and lactating women may be a contributing factor for the hesitancy observed in a few of the study participants. The availability of an increased number of literature regarding the clinical trial data in the long run will spread awareness and remove the barriers and finally, India will achieve maximum Covid-booster vaccine coverage shortly.

6. LIMITATIONS.

The limitations of this study include a small sample population who were included in this study. The findings of this study cannot be generalized for a larger sample population. Further-

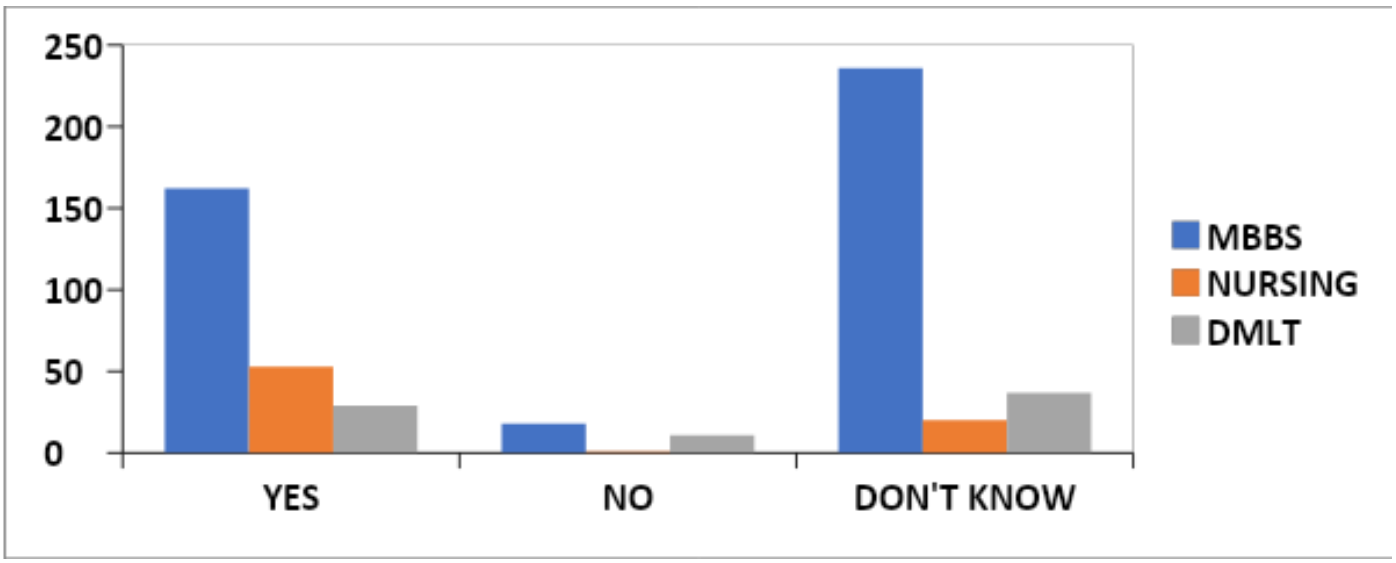

Figure 3: **Safety of booster dose in Pregnancy and Lactation.**

more, the lack of a comparison group also poses a limitation for this study's findings.

7. RECOMMENDATION.

Messaging around boosters and vaccines needs to emphasize they are safe and convenient to take and that both are important.

8. ACKNOWLEDGEMENT.

We are thankful to the patients and their caring parents without them the study could not have been done. We are thankful to the supporting staff of our hospital who were involved in the patient care of the study group.

9. LIST OF ABBREVIATIONS.

MBBS- Bachelor of Medicine and Bachelor of Surgery
DMLT- Diploma in Medical Laboratory Technology
SARS-COV-2- severe acute respiratory syndrome-related coronavirus 2
WHO- World Health Organisation
VBD- Vertebrobasilar dolichoectasia

10. Source of Funding.

The study was not founded.

11. Conflict of interest.

The authors report no conflicts of interest in this work.

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13. REFERENCES.

1. Lounis M, Bencherit D, Rais MA, Riad A. COVID-19 Vaccine Booster Hesitancy

(VBH) and Its Drivers in Algeria: National Cross-Sectional Survey-Based Study. Vaccines. 2022 Apr 15; 10(4):621.
2. Burki, T.K. Herd immunity for COVID-19. *Lancet Respir. Med.* 2021, *9*, 135–136.
3. World Health Organization (WHO). Coronavirus Disease (COVID-19): Herd Immunity, Lockdowns and COVID-19. 2020. Available online: https://www.who.int/news-room/questions-and-answers/item/herd-immunity-lockdowns-and-covid-19 (accessed on 26 March 2022).
4. https://en.m.wikipedia.org/wiki/COVID-19_vaccination_in_India
5. https://doi.org/10.3390/ijerph19127233
6. Shrotri, M.; Navaratnam, A.M.D.; Nguyen, V.; Byrne, T.; Geismar, C.; Fragaszy, E.; Beale, S.; Fong, W.L.E.; Patel, P.; Kovar, J.; et al. Spike-Antibody Waning after Sec- ond Dose of BNT162b2 or ChAdOx1. *Lancet* 2021, *398*, 385–387
7. Naaber, P.; Tserel, L.; Kangro, K.; Sepp, E.; Jürjenson, V.; Adamson, A.; Haljasmägi, L.; Rumm, A.P.; Maruste, R.; Kärner, J.; et al. Dynamics of Antibody Response to BNT162b2 Vaccine after Six Months: A Longitudinal Prospective Study. *Lancet Reg. Health Eur.* 2021, *10*,100208.
8. Cromer, D.; Steain, M.; Reynaldi, A.; Schlub, T.E.; Wheatley, A.K.; Juno, J.A.; Kent, S.J.; Triccas, J.A.; Khoury, D.S.; Davenport, M.P. Neutralising Antibody Titres as Predictors of Protection against SARS-CoV-2 Variants and the Impact of Boosting: A Meta-Analysis. *Lancet Microbe* 2022, *3*, e52–e61.
9. Shekhar, R.; Garg, I.; Pal, S.; Kottewar, S.; Sheikh, A.B. COVID-19 Vaccine Booster: To Boost or Not to Boost. *Infectious Disease Rep.* 2021, *13*, 924–929.
10. https://www.statista.com/statistics/1202074/share-of-population-vaccinated-covid-19-by-county-worldwide/
11. Rzymski P, Poniedziałek B, Fal A. Willingness to receive the booster COVID-19 vaccine dose in Poland. Vaccines. 2021 Nov 5; 9(11):1286.
12. https://forms.gle/ps9jdVshSLxZN54L8
13. Klugar M, Riad A, Mohanan L, Pokorná A. COVID-19 vaccine booster hesitancy (VBH) of healthcare workers in Czechia: National cross-sectional study. Vaccines. 2021 Dec 6; 9(12):1437.

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