

Brief Research Report

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A positive update on COVID-19 booster vaccine willingness among Danes

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ABSTRACT

INTRODUCTION. Based on survey data from September 2021, we recently reported that an estimated 90% (weighted total) of vaccinated (completed or scheduled) adult Danes were also willing to receive a COVID-19 booster vaccine, once offered. This survey was, however, fielded before booster vaccination was recommended to the general adult population in Denmark, which may have resulted in an underestimation of booster vaccine willingness. Therefore, we conducted a follow-up survey targeting the same individuals.

METHODS. The follow-up survey wave was fielded in December 2021 using the same methods as in the September 2021 wave. Using data from participants responding to both survey waves, we compared COVID-19 booster vaccine willingness between the waves by means of paired t-test.

RESULTS. A total of 1,429 invitees (58%) responded to the follow-up survey. Among those, 1,324 (93%) had also responded to the initial survey on COVID-19 booster vaccine willingness. At follow-up, among the 95% reporting to be vaccinated or that COVID-19 vaccination was scheduled, a weighted proportion of 95% indicated that they were willing to receive the booster vaccine once offered. Booster vaccine willingness at follow-up (December 2021) had statistically significantly increased ($p < 0.001$) compared with the initial survey (September 2021).

CONCLUSIONS. Almost all of the COVID-19-vaccinated Danes seem willing to receive a booster dose of the vaccine, which bodes very well for the COVID-19 immunisation state in Denmark.

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TRIAL REGISTRATION. not relevant.

Based on data from the sixth wave of the COVID-19 Consequences Denmark Panel Survey, conducted from 30 August to 15 September 2021, we recently reported that an estimated 90% (weighted total) of vaccinated (completed or scheduled) adult Danes were also willing to receive a COVID-19 booster vaccine, once offered [1]. However, as this survey was fielded before the European Medicines Agency (EMA) had authorised the use of messenger ribonucleic acid (mRNA) COVID-19 vaccines for the booster dose and at a time when the COVID-19 booster vaccine was only recommended for a very selected fraction of the Danish population (nursing home residents and individuals with immunosuppression), the booster vaccine willingness of 90% was possibly an underestimate. To address this, we conducted a follow-up survey of COVID-19 booster vaccine willingness targeting the same individuals after the mRNA vaccines had been authorised for the booster dose by the EMA and the Danish Health Authority had recommended the booster dose for all adults.

METHODS

As in the sixth wave of the COVID-19 Consequences Denmark Panel Survey, we commissioned the survey agency Epinion to conduct an electronic survey among the 2,457 respondents from the first wave. This seventh wave was fielded from 10 December to 23 December 2021 and included the following questions on vaccine willingness: “Have you been vaccinated against coronavirus or is the vaccination scheduled?” Those confirming were asked: “The health authorities expect that all Danes will be offered a so-called ‘booster-vaccine’ to increase the efficacy of the vaccine against coronavirus. Some Danes have already received the booster vaccine. Have you received the booster vaccine or is the booster vaccination scheduled?”. Those responding “no” to this question were asked “Will you accept the booster vaccine, if/when offered?”

Participation in the survey was based on consent. According to Danish Law, ethical review board approval is not required for survey studies. The data were stored and handled in accordance with the General Data Protection Regulation. The responses to all questions in the survey were weighted using inverse propensity weighting [2] by gender, age, level of education, region and political party choice at the latest general election (5 June 2019) to render the respondents representative of the adult population of Denmark on these variables. Two analyses were conducted. First, we calculated the weighted COVID-19 booster vaccine willingness (proportion responding that booster vaccination had been received/scheduled or would be accepted if/when offered) based on data from wave seven. Second, based on data from those responding to both wave six and wave seven, we compared booster vaccine willingness between these waves by means of paired t-test (threshold of statistical significance set to 0.05). All analyses were conducted using Stata version 17.0 (StataCorp LLC, College Station, Texas, US).

RESULTS

A total of 1,429 (58%) of the 2,457 invitees responded to wave seven of the survey and a weighted

proportion of 95% confirmed that they either had received the vaccine against COVID-19 or that the vaccination was scheduled. Among those reporting to be vaccinated or that vaccination was scheduled, a weighted proportion of 95% indicated that they were willing to receive the booster vaccine if/once offered, whereas 3% indicated that they were unwilling to receive the booster vaccine and 2% preferred not to answer. A total of 1,324 (54%) of the 2,457 invitees responded to both wave six and wave seven of the survey (i.e., 93% of the respondents in wave seven had also responded to wave six). Using data from these respondents, we found that the weighted booster vaccine willingness had increased statistically significantly ($p < 0.001$) from wave six (September 2021) to wave seven (December 2021).

DISCUSSION

The results of this study strongly suggest that the COVID-19 booster vaccine willingness among Danes is high and either on a par with or higher than that reported for other countries [3-5], although direct comparison is challenging due to methodological heterogeneity. This finding is in line with the current reports on actual vaccine uptake in relation to the COVID-19 booster vaccine programmes currently being rolled out across the globe, where Denmark ranks among the countries with the highest number of administered COVID-19 booster vaccines per capita [6]. Our results also strongly suggest that COVID-19 booster vaccine willingness among Danes has increased from September 2021 to December 2021. There are two likely explanations for this development. First, prior to launch of the seventh wave of the survey, the Danish Health Authority had announced that all Danes aged 18 years or older would be offered a booster dose of the COVID-19 mRNA vaccines from either Pfizer-BioNTech or Moderna [7]. Second, the number of Danes contracting COVID-19, a growing proportion with the Omicron variant, rose markedly from the end of November and throughout December 2021 [8], i.e., when the seventh wave of the survey was being conducted. It seems plausible that these developments would have spurred willingness to receive the booster dose.

This study carries some limitations parallel to those reported in our prior publications on COVID-19 vaccine willingness based on data from the panel survey [1, 9]. Most importantly, data on actual vaccine uptake are preferable over survey data since they are not prone to social desirability bias (people reporting vaccine willingness without eventually accepting the vaccine), which, along with a potential non-response bias despite the weighting on key sociodemographic variables, may have led to overestimation of booster vaccine willingness in the present study. Furthermore, whereas the questions used to evaluate booster vaccine willingness were virtually identical in wave six and wave seven, wave six did not include the question “Have you received the booster vaccine or is the booster vaccination scheduled?”, but merely “Will you accept the booster vaccine, if/when offered?” This was due to the fact that at the time of the sixth wave, only a very small (0.4% [6]) and highly selected proportion of the Danish population (nursing home residents and individuals with immunosuppression) had received the booster dose. Therefore, this difference in

questions is unlikely to have had any meaningful effect on the observed increase in COVID-19 booster vaccine willingness from survey wave six to seven.

CONCLUSIONS

In conclusion, almost all COVID-19-vaccinated Danes seem willing to receive a booster dose of the vaccine, which bodes very well for the COVID-19 immunisation state of Denmark in the immediate and more distant future.

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Conflicts of interest Potential conflicts of interest have been declared. Disclosure forms provided by the authors are available with the article at ugeskriftet.dk/dmj

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